

# AMERICAN ARTISAN

August 1961

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• Ventilation and Dust Removal

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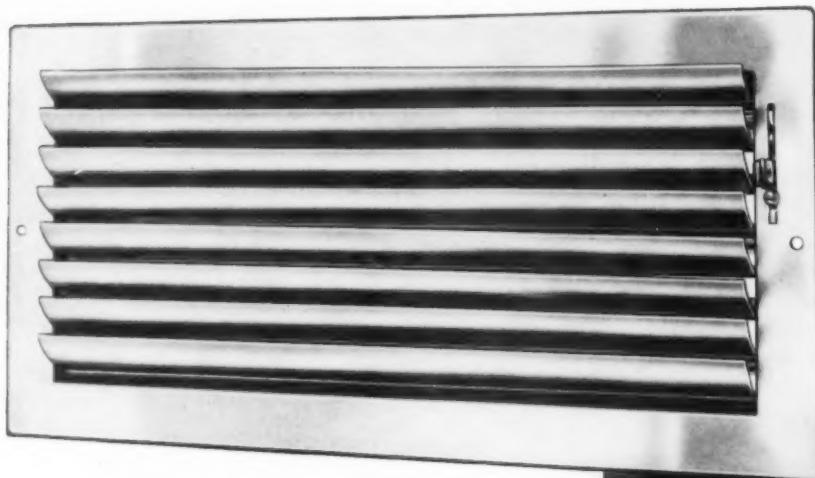
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# AMERICAN ARTISAN

- Warm Air Heating • Sheet Metal Contracting
- Air Conditioning • Ventilation And Dust Removal

**August 1961**

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## NEW Mueller Climatrol ducted-air Electric Furnace

Stop "short-changing" yourself by quoting competitive prices only. Give your customer the choice of a top-quality unit, too — such as this Model 329 *ducted-air* Electric Furnace. *Its value overshadows price . . .* gives your customer a wider margin of benefits, gives you a wider margin of profit.

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**MODULATED COMFORT** — No ON-OFF ups-and-downs in comfort: the 329 offers 5-stage control that automatically modulates input to provide constant, uniform heat every minute, no matter what the outside temperature, for wall-to-wall, ceiling-to-floor comfort.

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— and quality means profit!*



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## the editor's notebook

(Continued)

### Thumbing Through This Month's Artisan

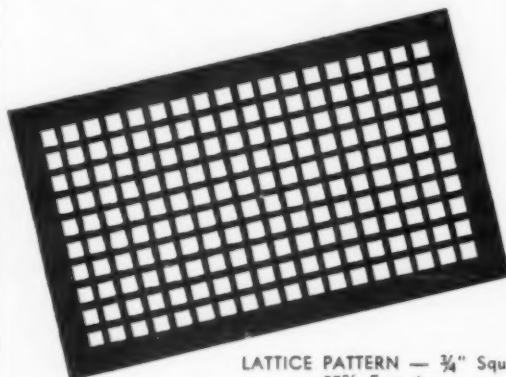
... we are given what could be a typical example of an air conditioning contractor's response to a customer complaint concerning high electric power bills incurred while operating their summer air conditioning equipment. The reader follows the contractor through his investigations to determine *What Conditions Contribute to High Power Bills?* Following the complaint, a quick recheck of the original estimate proves to be reasonable. When the serviceman finds nothing basically wrong with the system during his routine mechanical check, the contractor makes a personal visit to the customer's home. During his visit, he checks for various sources of heat gain. The doors to the house are left open; the cooling equipment is in the garage—, the overhead door is kept open for convenience; the filter access door is missing. The contractor's findings showed that the living habits of the homeowner accounted for an additional heat gain of 50 percent over the original estimate, thus forming the basis for a high power cost complaint.

### Metal Panels

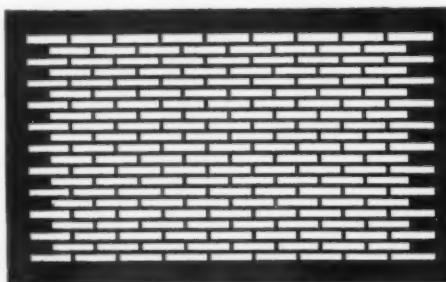
... for ceiling and wall applications are frequently overlooked when choosing material for both interior and exterior building decor. An example of such application is a recent job handled by the Standard Sheet Metal Co., Peoria, Ill., for a 12 store shopping center. With 24 panel styles to choose from, contractors Jay and Ellis Harms offered each store tenant the type of ornamental background that best harmonized with their product lines. *Sells Metal Ceilings to Harmonize with Interior*



## Architectural Grilles for every type of installation



LATTICE PATTERN —  $\frac{3}{4}$ " Square  
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Getting exactly what you want is no problem when you specify A-J Architectural Grilles. There are practically no limitations on size and grilles can be made to your exact order from steel, aluminum, bronze, monel or stainless. Available in slotted designs B, C and D, and square meshes of  $\frac{1}{2}$ ",  $\frac{3}{8}$ ",  $\frac{3}{4}$ ",  $1\frac{1}{2}$ " and  $2\frac{1}{2}$ ".



NEW FROM A-J! Design E Convactor-type grille with vertical pencil-proof slots for cooling or heating outlets, return or exhaust application. Free area 54%. May be installed in sills, sidewalls, ceilings or floors. Available in steel, aluminum, stainless or bronze.

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that contains complete specifications.

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Dept. A-8 3601 E. 18th St. Kansas City 27, Mo.

## the editor's notebook

(Continued)

*Decor* gives a step-by-step description of how the metal ceiling panels were installed, beginning with the selection of a pattern and following the job through to its completion.

### Subscribers

... are invited to compare their operating ratios with those of successful businesses each month as the Artisan continues its series of operating statement reviews which will cover representative businesses from nine different combinations and with annual sales volumes from \$50,000 upward. Last month two similar heating and air conditioning dealer-contractor organizations were reviewed. *How Does Your Company Compare?*, the second report of the series, provides an additional operating costs and expenses break down for your analysis and personal use.

### Modernization

... of air distribution systems has been a challenge to members of Grover C. Chase Co., Collingswood, N. J. Their experience in this area was put to the test in installing year 'round air conditioning in a 21 year old, two-story, nine room house as illustrated in the article, *Separate Duct Systems Unravel Year 'Round Modernization Problems*. Since staggered partition walls seldom make it possible to install new ducts in stud spaces that would permit the use of baseboard or sidewall diffusers, modernization was accomplished by the use of two separate duct systems. The article gives an account of the problems encountered during the installation and to the solutions that were provided by the company.

# A "NEW LOOK" FOR AN "OLD-TIMER"



William E. Boyd Residence, El Paso, Texas  
Architect: Ray Parrish, Scottsdale, Arizona  
Roofing Contractor: L & K Sheet Metal Roofing Co., El Paso, Texas



Residence: Elmer P. Gavello, Sunnyvale, California  
Architect: Anshen and Allen, San Francisco, California  
Roofing Contractor: Virgil Johnson, Sunnyvale, California

## Architects Everywhere are Excited about Follansbee Terne... the oldest "new" roofing material

The men who design today's modern buildings are specifying various types of Follansbee Terne roofs because Terne gives them the opportunity to combine distinctive form and color into the roof area. Batten and standing seams and the new horizontal, bermuda seam are being used on an increasing number of quality homes and on many new commercial buildings.

Shortly before his death, Architect Frank Lloyd Wright said of Terne, "... because of its inherent adaptability in both form and color, Follansbee Terne permits the visible roof area to become a significant part of structural design."

In a very practical sense, Follansbee Terne is a roofing material that will please both you and your customer.

Follansbee Terne gives outstanding, lifetime service; its ease of fabrication and its pricing structure assures the roofer that a Terne roofing job will give him a better profit.

If your shop hasn't been working with Terne lately, it will pay you to learn more about this new "old-timer" that is creating more and more interest among architects and builders everywhere.



Alexander Memorial Arena Building, Georgia Tech  
Architect: Aeck Associates, Atlanta, Ga.  
Roofing Contractor: R. F. Knox Co., Inc., Atlanta, Ga.

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A-8

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Firm

Street

City  Zone

State

**FOLLANSBEE STEEL CORPORATION**  
Follansbee, West Virginia



## the editor's notebook

### Special Shoes Needed For This Job

IF YOU WOULD LIKE to leave footprints on the sands of time, you had better wear work shoes.

### Healthy Business Asset in 'Cold War'

I WAS INTERESTED in the remarks made recently by Robert G. Welch, executive vice president of the Steel Service Center Institute, regarding our part, as businessmen, in counteracting the tactics used by Russia in the "cold war." First, according to Mr. Welch, "we must understand our own economy and be ready to defend it against trained Marxists. Second, we should get to know and understand our friends outside the United States. And third, we must keep our businesses strong and healthy. We must strengthen them in every area. They must be profitable, progressive, dynamic."

Addressing delegates attending the institute's annual convention, he urged institute members to keep up to date on new sales techniques, improved accounting procedures, cost reduction programs and improved personnel management. "These are the things we must do to remain competitive, to keep our businesses healthy in an era of shrinking profit margins."

He urged members to re-examine their methods of operation, asking: "Are we participating in continuing education programs to stretch our minds — to expand our knowledge of new techniques in operations research, inventory control, marketing, pricing theory and labor relations?"

Mr. Welch cited the 60's

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65,000 to 300,000 B.T.U.
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WRITE FOR INFORMATION AND NAME OF  
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**THE JOHNSON FURNACE COMPANY**

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## the editor's notebook

(Continued)

as the era of "customer service." Steel service centers, he said, must be able to provide "expanded, improved services, new and better products... on a profitable basis. Adopting new marketing techniques and production methods will help revitalize our industry."

### Price Selling Hard on Homeowner

I LIKED this recent comment by C. W. Nessell, Minneapolis-Honeywell Regulator Co.:

"I have no quarrel with low-cost heating systems, but I have a violent dislike for ones that kid the homeowner because it can be tragic kidding for him. I feel the same way about cooling."

### 'Under-Achievers' Poor Employees

HOW MANY OF US know young people (18-22 years old) who never made good grades in school but who, when interviewed, appear to have a high degree of intelligence? I believe each of us can name cases where this has come to our attention. Educators call them "under-achievers" — students with high IQ's but poor school grades. A current estimate is that there are over 400,000 of them (boys outnumber girls two to one). They will probably not make the college admission standards and will enter the labor market. They can be spotted by industrial IQ tests and checks on their school grades. Watch out for these overqualified under-achievers (both student applicants and persons already in the labor market), because they do not adjust well to routine, repetitive, or detail jobs.

Reasons for school under-achievers: television, cars,



# 2 More NEW Lockformer *Auto-Guide* POWER FLANGERS



**NEW** Model 16 for  $\frac{3}{8}$ " flanges  
on 16—24 gauge

**NEW** Model 18 for  $\frac{1}{4}$ " flanges  
on 18—26 gauge

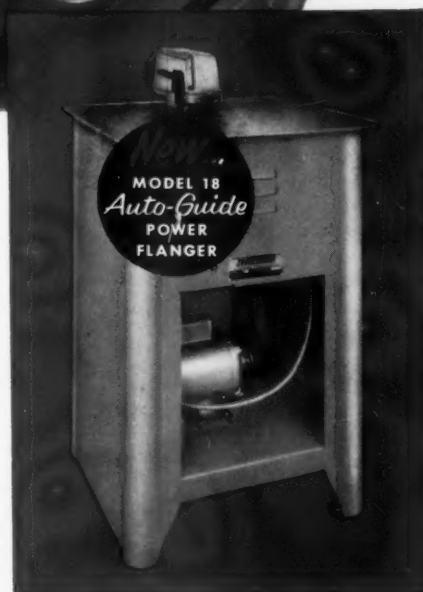
**PLUS** Model 20 for  $\frac{7}{32}$ " flanges on 20—26 gauge

**AND** Auto-Guide Power Flanger Attachments for your  
Lockformer Model 20, 22, 24—with or without separate  
power unit

Now—after years of shop-proven performance on the Model 20 Auto-Guide Power Flanger—Lockformer brings you the same profit-making Auto-Guide features in the new Model 16 and Model 18 Power Flangers.

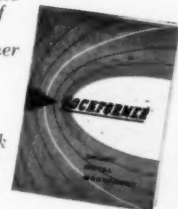
Auto-Guide follows any edge you feed it, AUTOMATICALLY! Just turn up a starting flange in the convenient table slot, start the material through the machine and LET GO! Turn up perfect flanges every time on inner radii, outer radii, irregular curves or straight edges. Any one in the shop can operate a Lockformer Auto-Guide Power Flanger, with the same results.

And, most important—each of the Auto-Guide models turns a flange to match perfectly the Pittsburgh Locks produced on its companion Lockformer: Model 16 Auto-Guide flanges fit Lockformer Model 16 Pittsburghs; Model 18 Auto-Guide flanges fit Pittsburghs rolled on Model 18 Lockformers; and Model 20 Flanger matches the Super Speed 20, 20, 22 and 24 Lockformers.



**SEND FOR YOUR FREE  
LOCKFORMER CATALOG**

Latest edition gives complete information on full line of Lockformer Auto-Guide Power Flangers, Lockformer Machines, Cleatformers, Slitters, Snap Lock Machines, Band Saws, Speednotch, Cliprol, Button Punch Snap Lock and other money-making equipment.



manufactured by

**THE LOCKFORMER COMPANY**

Dept. A, 4615 West Roosevelt Road, Chicago 50, Illinois

In Canada: Brown Boggs Foundry & Machine Co., Ltd.,  
Hamilton, Ont.



## the editor's notebook

(Continued)

more money, accelerated social life. A study of 20,000 students by an insurance company found students permitted to drive on week nights had twice as many failures as the "weekend only" groups. Sixty-seven percent of "A" students did some driving; 82 percent of "F" students drove regularly.

This is interesting data and can possibly be used to locate that new trainee you've had in mind, or the new office girl to help out the present staff.

### Research Efforts Must Be Expanded

HAVE YOU ever wondered why large companies place so great a value on research? W. G. Hamilton Jr. explains it this way: "It is our job to foresee the future, to visualize and forecast the consumer's concept of modernity, and to make that concept an available reality." Pointing to recent scientific advances, Mr. Hamilton said the consumer has every right to expect that these achievements will be translated by industry to raise his standard of living. "It is my firm belief that as the desires and demands of the market move upward, the purchaser's emphasis will move more and more towards quality appliances and equipment," he said.

### 'You Can Have Comfort For 5 Cents an Hour'

ONE OBJECTION to summer air conditioning a prospect is apt to bring up is high operating costs. He's heard it costs, say, \$400 a year to operate an air conditioning system. Why not tell him to look at it this way?

"It doesn't cost \$400 a year. It costs, maybe, 5 cents

Custom designed

for Sectional type  
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engineered by  
you to fit your  
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Now you can get efficient, low cost lighting for your sectional type burners . . . the Modern "Carry-Over" Tube provides integral lighting of sections with a positive flame track between the burners and the pilot. The Modern "Carry-Over" Tube is a stainless steel tube  $\frac{3}{8}$  inch O.D. and is available with either single or double rows of lanced ports extending over the active lighting length. The Modern "Carry-Over" Tube is not an attachment. It is engineered by you to fit your unit and be a smoothly functioning component of your product . . . Write for complete details—no obligation.

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for safe, convenient and dependable "Outside Lighting" . . . check the advantages of the Modern Lighter Tube featuring "Push-Button" pilot lighting.

**MODERN  
LIGHTERS,  
INC.**

South Lyon, Michigan



WRITE FOR  
LITERATURE

## the editor's notebook

(Continued)

an hour. And look at the comfort, the service you get for that 5 cents an hour.

"You get a servant that doesn't sleep, doesn't want days off, doesn't want a minimum wage, doesn't raid the refrigerator, and doesn't tell your neighbors about the late hours you keep. It's the cheapest servant imaginable. For a few pennies an hour you get a wonderful, never complaining, never troublesome servant."

### 'Getting Along' Is Up to You

SOONER OR LATER, a man discovers that life is a mixture of good days and bad, victory and defeat, give and take.

- He learns that it doesn't pay to be a sensitive soul, that he should let some things go over his head.

- He learns that he who loses his temper usually loses out.

- He learns that all men have burnt toast for breakfast now and then, and that he shouldn't take the other fellow's grouch too seriously.

- He learns that carrying a chip on his shoulder is the easiest way to get into a fight.

- He learns that the quickest way to become unpopular is to carry tales and gossip about others.

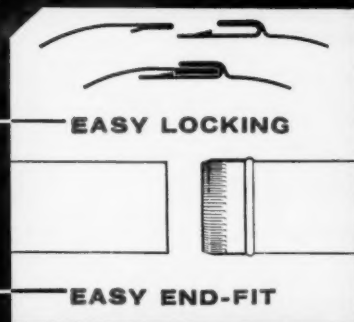
- He learns that most of the other fellows are as ambitious as he is, that they have brains that are as good or better, and that hard work and not cleverness is the secret of success.

- He learns to sympathize with the youngster coming into the business, because he remembers how bewildered he was when he first started out.

- He learns that no man ever got to first base alone

# 2 QUICK STEPS TO JOB SATISFACTION

...with **MILCOR LOCK-JOINT  
FURNACE PIPE**



## **Click . . . and seams are locked!**

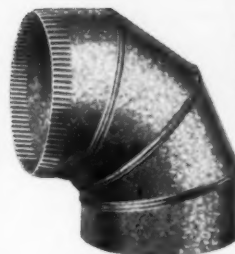
Easiest-locking seam on the market. Clicks together with little more than finger-touch pressure. You assemble all the joints you need for the job with minimum time and effort.

## **Joints are quickly, securely connected!**

Short fade-away crimp quickly guides male end of joint into connecting joint. Entire distance from end of crimp to bead provides wide bearing surface — forms snug-fitting, secure connection without sheet metal screws.

Milcor Lock-Joint Furnace Pipe is available in 24", 30", 60", and 120" lengths. Popular sizes and gauges in Ti-Co galvanized steel. Ask your jobber or write to us for further information and prices.

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## **Complete selection of matching fittings**

Compute your profits more accurately by eliminating the hidden costs of handmade fittings. Free your men for installation work so you can handle more jobs during the busy season. There's a complete selection of top quality Milcor standardized fittings available to meet every installation requirement. Use them to insure compact, neat-looking, owner-pleasing jobs.

*You can stake  
your reputation on  
a Milcor installation!*

## the editor's notebook

(Continued)

and that it is only through cooperative effort that we move on to better things.

- He learns that bosses are not monsters, trying to get the last ounce of work out of him for the least amount of pay, but that they are usually fine men who have succeeded through hard work and who want to do the right thing.

- He learns that folks are not any harder to get along with in one place than another, and that getting along depends about 98 percent on his own behavior.

### How Much Do You Spend To Hire Employees?

How MUCH does it cost "per employee hired" for various recruiting sources? According to American Management Association's "Recruiting and Selecting Office Employees," costs run about as follows: present employee referrals, \$85 per employee hired; employment agencies, \$92; newspaper advertisements, \$107; schools, \$133.

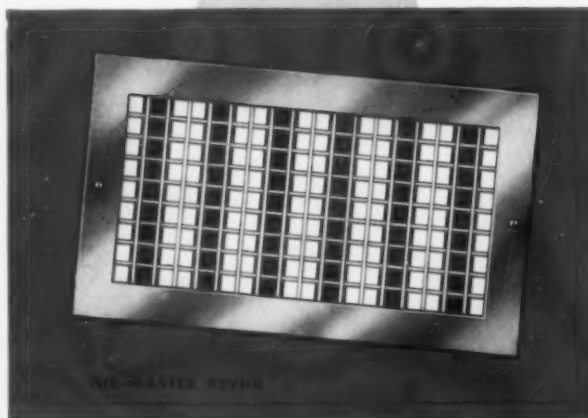
### Using Insurance For Deferred Compensation

VARIOUS METHODS a dealer-contractor may use to retain key employees until retirement age have been described in this column during the past four months. This month, the role of insurance in a deferred compensation plan, as described in bulletin 107 of the Small Business Administration's Management Aids series, is presented.

Here's how insurance can be used to provide deferred compensation for key employees after retirement at 65. On the one hand, a company buys a policy on its key man. The firm pays the premium, owns the policy, and is the beneficiary. If the key man

## Announcing the New Air-Master Series 92

THE ULTIMATE IN ADJUSTABLE LOUVRE  
REGISTERS AND GRILLES



Here's 4-way deflection with "pin-point" air control... for commercial and residential installations... the product of years of testing and development.

- CONSTRUCTED OF RUST-FREE ALUMINUM
- COMPLETELY CONDENSATION-PROOF

A sturdy, yet lightweight unit that defies comparison for both beauty and performance.



The Air-Master series contains four register styles and four styles of grilles. All standard and non-standard sizes are now available.

Ask your local jobber about the new Air-Master Series and get your copy of the new full-color A & A Catalog 60 or write direct to:



## the editor's notebook

(Continued)

should die, the face value of the policy is paid to the company, and the company receives it free of income tax. On the other hand, as the company makes deferred compensation payments, the amounts are income tax deductible.

The following figures show the result. If the policy is worth \$40,000, the company will receive the \$40,000 death proceeds without having to pay any part of it as income tax. When the company makes the series of \$4,000 per year deferred compensation payments for 10 years — a total of \$40,000 — it can deduct this amount from its taxable income as a legitimate cost of operation. Consequently, the payment of the \$40,000 in deferred compensation actually costs the business only \$20,000, assuming a typical 50 percent income tax bracket.

The concern has, of course, paid premiums to the insurance company. But to see further how that works, suppose a particular firm has paid an insurance company \$8,000 in premiums. Eventually the firm receives \$40,000 death benefits, free of income tax. This constitutes net gain of \$32,000. Then recall that it costs the business only \$20,000 to provide \$40,000 to the widow. So, finally, the business ends up some \$12,000 better off.

This kind of gain is not the real goal of the plan; it is merely a by-product. How things work out in the event the key man lives on into retirement will be discussed later in this series.

Next month how very small firms can use this plan will be covered in this column.

*Clyde M. Barnes*

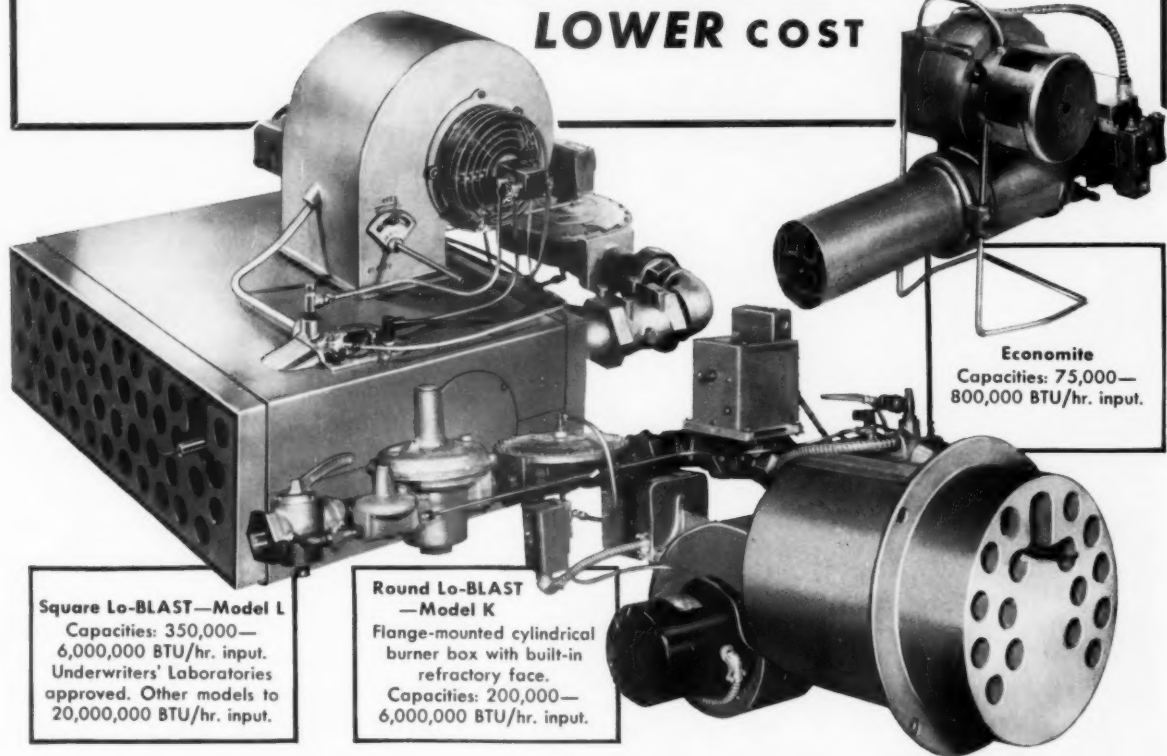
Editor

# LO-BLAST

## AND *ECONOMITE*

**POWER GAS BURNERS NOW AVAILABLE  
IN NEW ADVANCED DESIGNS...**

**GREATER CAPACITIES AT  
LOWER COST**



**Square Lo-BLAST—Model L**

Capacities: 350,000—  
6,000,000 BTU/hr. input.  
Underwriters' Laboratories  
approved. Other models to  
20,000,000 BTU/hr. input.

**Round Lo-BLAST  
—Model K**

Flange-mounted cylindrical  
burner box with built-in  
refractory face.  
Capacities: 200,000—  
6,000,000 BTU/hr. input.

**Economite**  
Capacities: 75,000—  
800,000 BTU/hr. input.

Over the years Lo-BLAST and Economite Power Gas Burners have established a solid reputation for dependable, low-cost operation. Now complete re-designing to add new engineering features to the tried and proved Lo-BLAST principles and to permit improved manufacturing methods has resulted in a *lower cost per BTU of capacity!*

Both burners save money because they eliminate the fuel waste caused by uncontrolled draft. A power-type burner provides a constant, metered supply of both air and gas independent of varying draft conditions. Perfect combustion at all times is the result, *with savings up to 10%!*

The Lo-BLAST Burner does not depend upon natural draft, but upon air supplied by a small, *quiet* blower. It provides both primary and secondary combustion air *only when the burner is on*. When the burner shuts off, the flow of air shuts off. The heating plant thus retains much of its heat between operations.

Lo-BLAST Burners eliminate the need for high chimneys—"inshot" design and complete factory assembly reduce installation and maintenance costs. Each unit is factory-tested on gas before shipment.

**Whatever you heat, you can do it for less with Lo-BLAST!**

*Send for descriptive literature and engineering data.*

**MID-CONTINENT**

**METAL PRODUCTS COMPANY**

2717 N. Greenview Avenue • Chicago 14, Illinois



# What do you think makes the Lennox dealer a leader?

Actually there are many reasons—but it starts with a reputation for “quality”



Whether a customer is interested in heating or cooling alone or 365 day air conditioning, Lennox has the *right* equipment at a competitive price. Included in the line are gas, oil, coal and electric heating systems, heat pumps, dual-fuel industrial heaters to 2,000,000 Btuh capacity and air conditioning units from 2 to 25 ton size!

The quality features in Lennox equipment result in fuel savings of about 20%. And this kind of performance helped build the reputation that makes Lennox outsell the next two largest competitors combined!

But there are other important stimulants to success for the Lennox dealer. For one thing, he has a complete line of heating and air conditioning equipment—an economical model for every installation.

Another reason he's prosperous—he's never made to walk alone! There's a superb field force of trained specialists at his disposal—help for so many tasks and problems that may arise. There are special sales and technical schools for his men . . . liberal financing plans . . . the most complete and thorough merchandising programs in the industry. And advertising designed for action!

Are YOU missing these ingredients of leadership and profit? Then write your nearest Lennox factory for the *complete* dealer story.

*Don't be satisfied with less than*

# LENNOX

**Heats, Cools, Treats and Moves Air**



IN HOMES



IN CHURCHES



IN SCHOOLS



IN COMMERCE

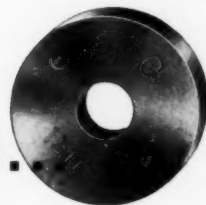
LENNOX Industries Inc., est. 1895—Marshalltown, Des Moines, Ia.; Columbus, O.; Syracuse, N.Y.; Decatur, Ga.; Ft. Worth, Tex.; Salt Lake City, Utah; Los Angeles, Calif. LENNOX Industries (Canada) Ltd.—Toronto, Montreal, Calgary, Vancouver, Winnipeg



# Peak <sup>Coil</sup> Performance



when you buy  
**SPORLAN Refrigerant Distributors**  
with the **Versatile Interchangeable Nozzle.**



*The distributor nozzle orifice is the key factor in creating the necessary velocity and turbulence to maintain a homogeneous mixture of liquid and vapor for equal distribution to all circuits of the evaporator.*

*Provides the desired flexibility to handle variations in evaporator applications . . . changes in load, temperature and refrigerants.*

*Distributor may be installed in any position.*

*Permits simplified inspection of solder joints and connecting tubing from distributor to evaporator.*

*Sporlan Refrigerant Distributors available in any combination of circuits and capacities . . . flare, sweat or flange connections . . . brass, steel or aluminum bodies.*

**And only the Sporlan line offers brass body distributors with auxiliary side connections developed especially for hot gas defrost, hot gas by-pass and reverse cycle (heat pump) applications.**

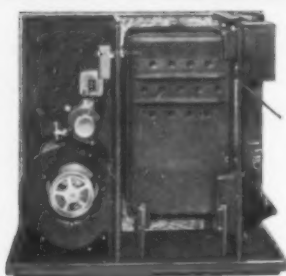
**Get all the facts, write for Bulletin 20-10.**

**SPORLAN VALVE COMPANY**  
7525 SUSSEX AVENUE ST. LOUIS 17, MISSOURI  
**TV**  
EXPORT DEPT. 85 BROAD STREET NEW YORK 4, N. Y.

# NEW FROM MONCRIEF

## Assembled and Wired Gas Furnaces

ALL-NEW ASSEMBLED  
AND WIRED BASEMENT  
FURNACES FOR REDUCED  
INSTALLATION COSTS



Interior view of new Moncrief Series SA Furnace, showing End-Welded, 16 Gauge Heat Exchanger, Large-Capacity Blower and Sturdy Floor Base with Mounting Channels — Unexcelled Construction.



5 attractively styled sizes are compact and easily handled. 24 Volt Honeywell Controls are standard equipment. Summer Air Conditioning is easily added without changing the big, quiet Blower. 100,000, 125,000, 150,000, 175,000 and 200,000 Btuh.

UPFLOW & COUNTERFLOW UNITS  
HAVE 24 VOLT HONEYWELL  
CONTROLS . . . COMPLETE LINE  
INCLUDES NEW 50,000 BTUH UNIT



Interior Construction of Upflow Furnace      New 50,000 Btuh Upflow Furnace

In addition to the End-Welded 16 Gauge Heat Exchanger, the Large-Capacity Blower and the Solid Cabinet, Moncrief Gas Fired Upflow and Counterflow Furnaces now feature 24 Volt Honeywell Controls — the Combination Fan and Limit Control, the Combination Gas Pressure Regulator, Automatic Gas Valve and Automatic Pilot and the Thermostat with a Built-In Heat Anticipator.

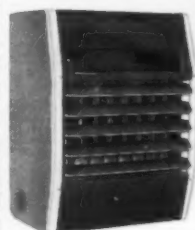
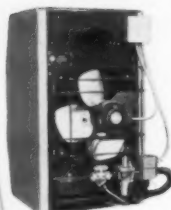
The new 50,000 Btuh Size is only 12" wide—designed to provide the advantages of complete winter air conditioning for apartments, other multiple-dwelling units and motels. Another Moncrief sales builder.

BEST SELLING, EXTRA-  
COMPETITIVE UNIT HEATERS  
NOW WITH CENTRIFUGAL  
BLOWER OR PROPELLER FAN



With Centrifugal Blower for connection of discharge duct

With Propeller Fan for extra-quiet operation



Distinctive, attractive styling for eye appeal

With attractive styling that conceals their rugged construction and quiet operation, Moncrief Unit Heaters have captured a large portion of the market — with prices that make them easy to sell. For installations with ducts and for long air throws, the 6 sizes of these popular units are now available with Direct Drive Blowers — in addition to the quiet Propeller Fans. Extra advantages from Moncrief.

# MONCRIEF

THE HENRY FURNACE

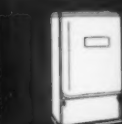
**MONCRIEF**  
SINCE 1895

COMPANY • MEDINA, OHIO

HEATING AND AIR CONDITIONING UNITS

FURNACE PIPE AND FITTINGS

2, 3, 4, 5 and  
7½ Ton Air  
Cooled  
Condensing Units  
Upflow,  
Horizontal and  
Counterflow  
Evaporator  
Coils — Air  
Handling  
Blower-Coil  
Units



Combination Year Round Air Conditioners  
Air or Water Cooled  
Gas or Oil Fired



Gas Conversion  
Burners



Gravity Furnaces  
Gas or Oil Fired

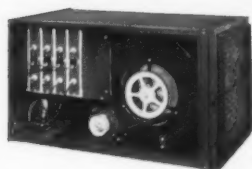


Smokeless, Odorless  
Gas Incinerators

# BETTER FROM MONCRIEF

## Electric Winter A. C. Units... Oil Fired Furnaces

**A COMPLETE ELECTRIC  
LINE FOR HORIZONTAL  
UPFLOW OR COUNTERFLOW  
INSTALLATION**



Above, Electric Winter Air Conditioner in Horizontal position. Below at left, in Upflow position. Below at right, in Counterflow position.



With Moncrief, Electric Winter Air Conditioning is compact, flexible and readily converted to All-Electric Year 'Round Air Conditioning. From a single, small, completely factory-assembled-and-wired package you get big heating and big air handling capacities. The 24 Volt Controls provide sensitive response to temperature change. Moncrief gives you extra Flexibility.

**FACTORY ASSEMBLED OIL UPFLOW,  
BASEMENT & COUNTERFLOW  
FURNACES ARE EQUIPPED WITH THE  
MOST WANTED TYPE OF CONTROLS**

The Combustion Chamber of Moncrief Oil Furnaces is round and the Firebox is the moulded Refractory type — quiet, trouble-free and dependable. In addition, these completely assembled Moncrief Oil Furnaces provide all internal wiring for easy attachment of the Stack-Mounted Primary Control and the Fan and Limit Control in the most advantageous locations. The heavy construction contradicts the competitive price. More for your dollar with Moncrief.



Interior View of  
Upflow Furnace



Interior view of  
Basement Furnace

**LOW, SLENDER & COMPACT  
OIL HORIZONTAL UNITS ARE  
NOW COMPLETELY ASSEMBLED  
AT THE FACTORY**

Moncrief Oil Fired Horizontal Winter A. C. Units are now shipped with the Burner, Firebox and Controls assembled, as pictured below.

Complete lines of both Oil and Gas Horizontal Furnaces are set up at the factory for left hand discharge, but with provision for easy conversion to right hand discharge where desirable.

Extra-capacity, standard equipment blowers make Moncrief Horizontal Furnaces ideal for adaptation to year 'round air conditioning at any time.

With Moncrief, better furnaces at competitive prices add up to lower installed cost.



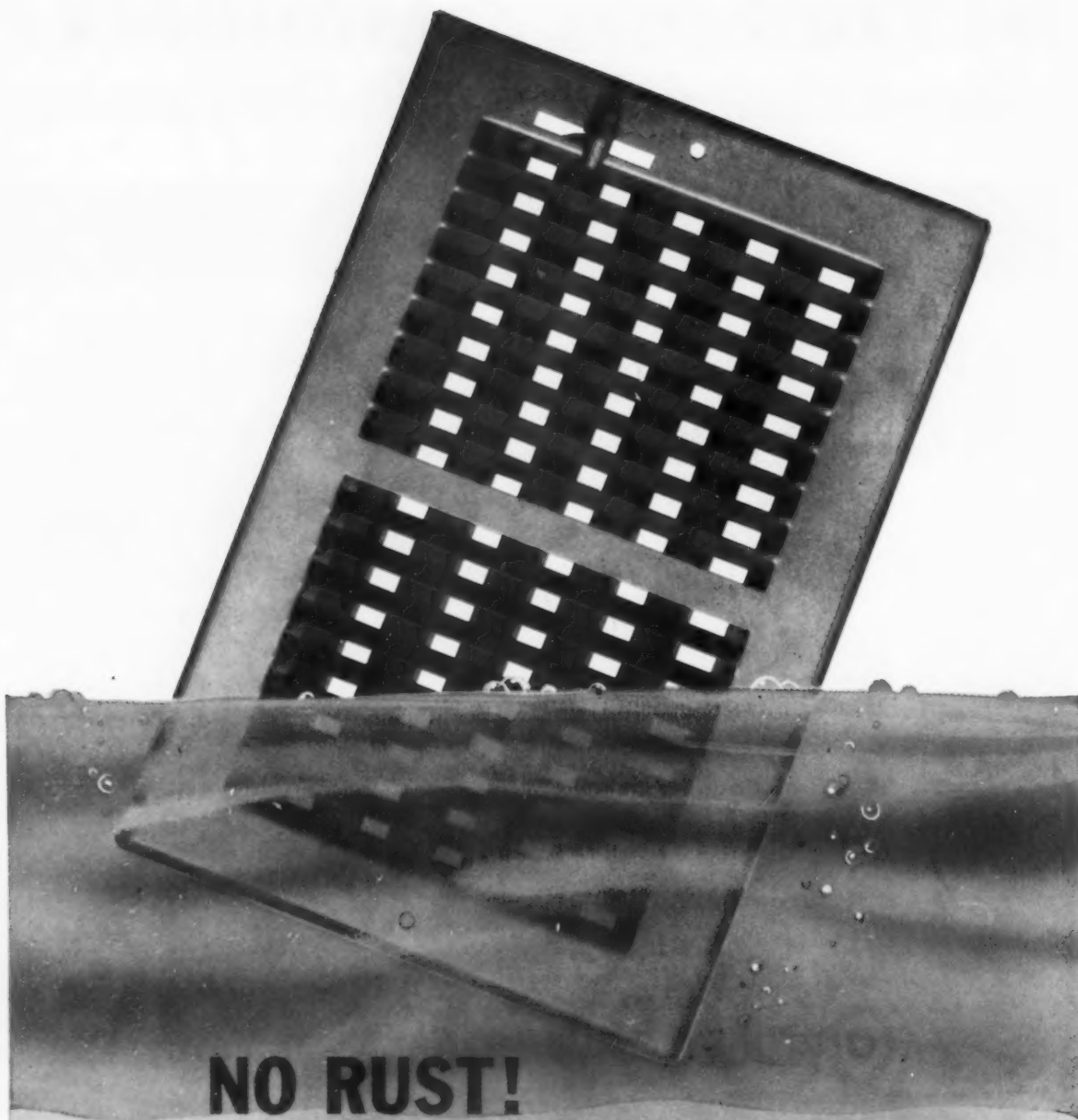
Oil Fired Horizontal Winter Air Conditioner as shipped from the factory, complete with Burner, Firebox, Controls and Wiring Harness installed

## CALL YOUR MONCRIEF WHOLESALER FOR MORE OF EVERYTHING YOU NEED

THE HENRY FURNACE **SUREFIT** COMPANY • MEDINA, OHIO

ROUND PIPE • ELBOWS • ANGLES • DUCT • STACK • FITTINGS • PLENUMS

<p>Round Pipe 60" and 24" Joints... Easily, Per- manently Assembled</p>	<p>Round Elbows... 90° and 45°... Easily Adjusted and Tight</p>	<p>Snap Lock Stack... 32" and 60" Lengths... Fit Easily and Accurately</p>	<p>Stack and Duct Fittings... Versatile Installations</p>	<p>Duct to Pipe Takeoffs Easily Installed... Streamlined Air Handling</p>	<p>Register Boots... Full Throats... Low Resistance</p>
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## NO RUST! WHY?

Reason? All Lima air conditioning grilles and registers are treated with Epon®; the very same rust inhibitor used on submarines. It's another Lima exclusive; put there to keep your customers happy with the Lima equipment you sell. Write for our catalog and prices.

**Lima**® REGISTER COMPANY  
1785 N. Cable Rd., Lima, Ohio

A COMPLETE LINE OF REGISTERS, DIFFUSERS AND GRILLES FOR HEATING AND COOLING... QUALITY-PLUS PRODUCTS OF AMERICAN CRAFTSMANSHIP.





# Instead of 18,000 controls... **NOW 170 WILL DO**

**INCREDIBLE** but true! Of the 18,000 control variations now available, Honeywell engineers selected and re-engineered 170 controls that do the job of the 18,000! And, they'll do the job right! Months of statistical and engineering analysis went into TRADELINE to allow you to streamline your control stock.

**NESTLED IN STYROFOAM!** New idea in control packaging. Just label and mail. Can't get damaged on truck. The Honeywell Round, V80 and V81 gas valves, pilotburners, thermocouples, and the Y400 Powerpile package are among the first of TRADELINE Controls to be nestled in self-mailing containers.



Now you wholesalers  
can give your dealers  
better service

You dealers can  
give your customers  
better service

YOU BOTH MAKE MORE MONEY  
WHEN YOU SPECIFY *TRADELINE*

---

*THE NEW WAY  
TO STREAMLINE  
WHOLESALEERS' AND  
DEALERS' CONTROL STOCK*

NOW LESS MONEY  
TIED UP IN  
CONTROL STOCK!



## ON THE SHELF...

**Cuts control inventory drastically!** The revolution in controls is here. No need to carry an endless variety, tie up capital and shelf space anymore.

**Just 170 TRADELINE Controls** do the job of 18,000 or more. By selecting the TRADELINE Controls you need for your territory, you can eliminate stocking many of the models and slow-movers you now have to carry. In fact, a proper selection of TRADELINE Controls will do the job in 93% of all installations!



**New pocket-sized cross reference guide** instantly tells you which TRADELINE Control to use. Prices? You get all the benefits of TRADELINE at no increase in cost.

**Planned program helps speed changeover.** We'll help you streamline your stock, acquaint your men and your dealers with TRADELINE. Hard-hitting advertising and merchandising will help you sell, too. So place your orders now, and be ready for the fall rush. For additional help, call your Honeywell representative.

## ON THE TRUCK...

**Just a handful can handle up to 93% of all service problems.** Now, you can afford to stock all the controls you should have. Put the right TRADELINE Controls on your truck and you're in business! They eliminate that extra trip for the right control.

Because TRADELINE Controls have been carefully selected and engineered to do the job of 93% of all common control applications, you just carry a few controls instead of hundreds. The handy cross-reference guide tells you instantly what TRADELINE Control to use. Just check the unit to be replaced against the list and pick the basic TRADELINE Control.

### PROVED IN TWO-YEAR TEST!

The TRADELINE idea of a few controls interchangeable with hundreds was field and sales tested thoroughly in the Southwest over a 2-year period. Then Honeywell engineers set out to make the idea work for nearly every control.

Why don't you call your wholesaler right now? He'll help you set up your basic stock.



HONEYWELL  
**TRADELINE**  
CONTROLS

HONEYWELL INTERNATIONAL. Sales and service offices in all principal cities of the free world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.

# FOR WHOLESALERS:

**TRADELINE** streamlines  
your control inventory...  
eliminates slow  
movers

# FOR DEALERS:

Just a few on  
your truck will normally  
handle up to 93%  
of your service  
problems

Open  
flap  
quick!.

\*TRADEMARK

# HONEYWELL ANNOUNCES



The big breakthrough  
that reduces your  
control inventory

Open  
flap  
quick!

## WHAT'S HAPPENING...

### Hold Silver Shield Sales Training Clinic in Buffalo

BUFFALO — Twenty western New York dealer-contractors recently attended a two-day Silver Shield sales training clinic held on successive Saturdays from 8:30 to 3:30. Bert Weigel, president of the Indoor Comfort Bureau of Western New York, pointed out that the industry "has never been in greater need of prestige-earning sales practices than it is right now, and every heating dealer-contractor should recognize this fact."

### Develop New Heat Gain Calculation Procedure

CLEVELAND — A new heat loss-heat gain calculation procedure has been developed by the Industry Heat Gain Joint Study Group. The group — composed of representatives of the National Warm Air Heating and Air Conditioning Association, the Air-Conditioning and Refrigeration Institute, and the Institute of Boiler and Radiator Manufacturers — began work on the project several months ago at the request

of the Federal Housing Administration. FHA pointed out that the variety of procedures in use was causing considerable confusion, as the heat gain calculated for a particular residence might vary widely according to the method of calculation used.

The new procedure will be incorporated in NWAHACA's Manual J, which is scheduled for publication September 15. Manual J will supersede the present Manuals 3 and 11.

### Discuss Merchandising, Building Prospects for Year's Last Half

CHICAGO — Discussing merchandising prospects for the remainder of 1961, Ralph Lazarus, president, Federated Department Stores, Inc., said recently: "Our expectations are that the upturn in personal disposable income, which began in the first quarter, will continue to rise steadily for the rest of 1961. During the last half of 1961, we believe disposable income will run 3 to 4 percent above the last half of 1960.

"We anticipate that retail sales will improve from now through the end of the year since consumer expenditures generally parallel the trend of disposable income. The gain this fall over the previous year should approximate three percent for total retail sales.

"Consumer repayments on installment credit actually exceeded extension of new credit in the early part of this year. Thus the consumer is in a favorable 'open-to-buy' position. In the past, this generally has resulted in an increase in purchases of big-ticket

items. We are beginning to see evidence of this upturn now."

Speaking on prospects for the construction industry, James R. Price, chairman of the board, National Homes Corp., made the following predictions for the last six months of 1961 as compared with the same period for 1960:

1) Residential building will continue to be down 5 percent in unit starts, somewhat less in dollar volume.

2) Commercial building will be unchanged although new projects undertaken in the last six months will show some decline.

3) Industrial building will hold approximately level with last year's comparatively poor showing.

4) Institutional building — as the result of various aid programs — will increase approximately 2 percent.

5) Repairs and maintenance will hold even with 1960's last six months.

6) Public construction will be up 7.9 percent.

### LA Air Conditioning, Sheet Metal Students Get New Facilities

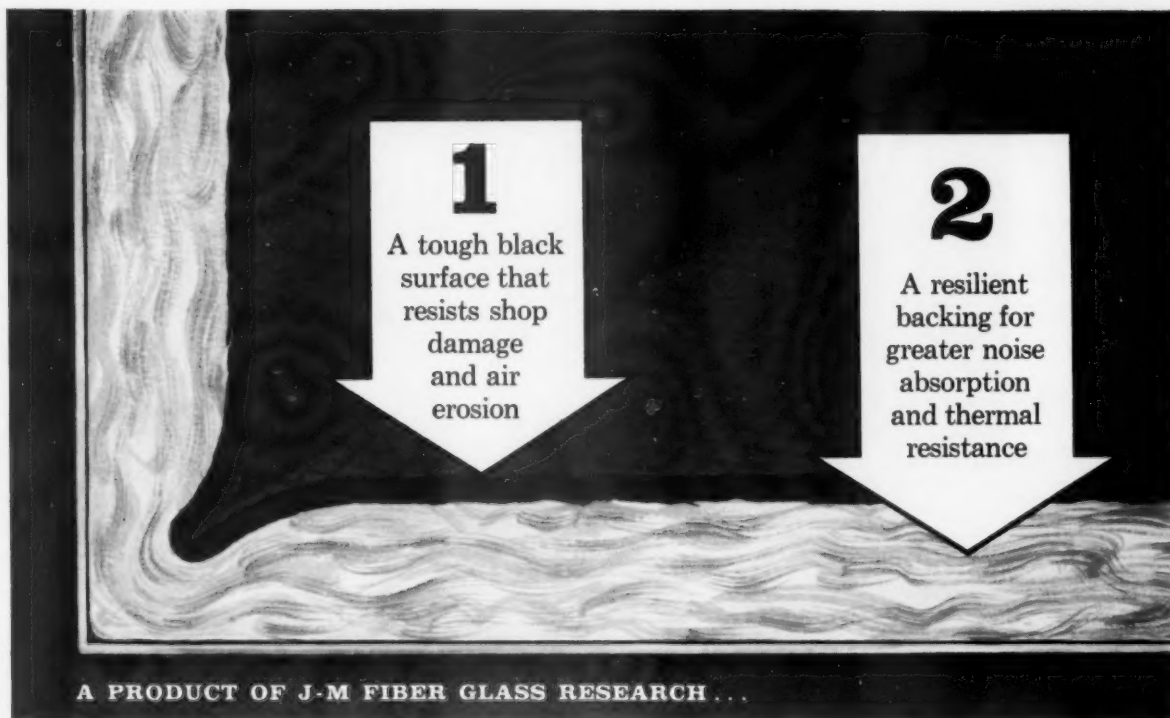
LOS ANGELES — A new "Building Trades" building is being constructed by the Los Angeles Trade-Technical College. Laboratories and shops for the study of air conditioning, sheet metal, refrigeration and numerous other subjects from mill cabinet to plastering will be housed in the new building.

### NOFI Presents Basic Oil Burner Course

NEW YORK CITY — National Oil Fuel Institute and The Oil Heat Institute of Greater Washington (D.C.) recently co-sponsored a basic oil burner course comprising eight 2½-hour evening sessions. Speakers provided by NOFI covered the following subjects: "Fuel Oils and Their Application

(Continued on page 28)





## This "Dual Density" duct liner prevents shop damage and waste

**New MICRO-BAR duct liner is resilient and easy to work with... yet so tough it defies tearing or scuffing.**

Only J-M MICRO-BAR offers you *two* densities. This unique construction allows MICRO-BAR to be flexible, and yet so rugged that you can easily fabricate it by customary methods. Another advantage... the heavy-density, erosion-resistant surface gives you a premium quality job at commercial quality cost.

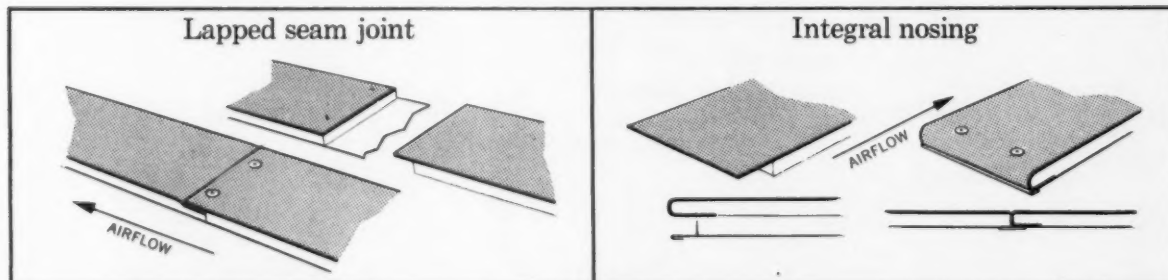
You save time by forming MICRO-BAR right in the brake with the sheet metal. No danger of damage...

no tearing, no scuffing... no patching, no waste. MICRO-BAR has exceptional holding power for pins. And it is so kind to hands that no gloves are needed.

This new Johns-Manville duct liner also has greater noise absorption and thermal resistance. It has earned the *lowest* Underwriters' flame-spread rating for flexible, coated fiber glass duct liners.

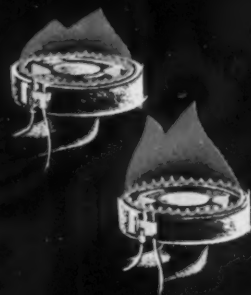
For complete information on this money-saving new J-M duct liner, call your J-M representative. Or write to J. B. Jobe, Vice-President, Johns-Manville, Box 14, New York 16, N. Y. In Canada: Port Credit, Ontario.

### MAKE THESE EROSION-RESISTANT JOINTS AND ELIMINATE COST OF EXPENSIVE METAL NOSINGS

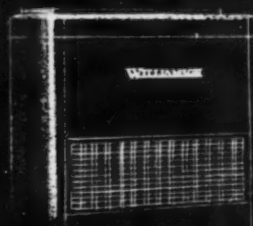


**JOHNS-MANVILLE**  
FIBER GLASS 

# Your customers will BUY



NEW . . . Miracle Burner . . . TWO STAGE OPERATION . . . famous Tripl-life iron and stainless steel ribbons . . . outstanding economy . . . whisper-quiet.



Famous Seal-Tite® cabinets in Hi-Boy, Lo-Boy and Counter-flow styles. Two-tone Frost green.



Hi-Boy Model

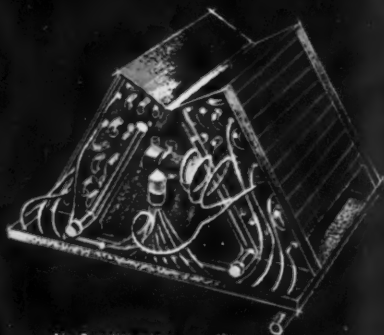


Counter-Flow Model

# the difference!



TWO thermostats... outdoor thermostat adjusts burner flame size to meet changing temperatures.



Air Conditioning... the Gasaver is designed for summer cooling with EXTRA blower capacity where required.



Lo-Boy Model with Air Conditioning

*new*  
**WILLIAMSON**

*Gasaver*<sup>®</sup>



Not just another furnace... new distinctive, exclusive features make the Gasaver different... set it apart from *all* other furnaces. *Customers recognize, want and will buy the difference that is Gasaver.* The Gasaver represents an engineering achievement, a positive contribution to modern home comfort.

#### BE A WILLIAMSON DEALER...

**HAVE** exclusive Gasaver... a tremendous advantage over your competition

**PLUS** exclusive Oilsaver in Hi-Boy, Lo-Boy and Counter-flow models

**PLUS** SUPER Series... a competitive line of quality units

**PLUS** famous Seal-Tite<sup>®</sup> Duct, Pipe & Fittings

**PLUS** the complete line of Williamson Air Conditioning units for residential or commercial installations

**PLUS** a complete line of *free* literature, engineering aids, and selling plans... all dealer designed and tested

COPYRIGHT, 1960 — THE WILLIAMSON CO.

THE WILLIAMSON COMPANY  
3310 x 20 Madison Road, Cincinnati 9, Ohio



I'd like more information on:

- WILLIAMSON Furnaces ☐ Gasaver ☐ Oilsaver ☐ Super Series  
☐ Williamson Air Conditioning  
☐ Williamson Seal-Tite<sup>®</sup> Duct, Pipe and Fittings

Name \_\_\_\_\_ Title \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

## WHAT'S HAPPENING...

(Continued from page 24)

### ***Air Force Publishes Study on How Ionized Air Effects Human Behavior***

WASHINGTON, D. C. — Breathing air charged with excesses of positive and negative ions has no discernible effect on human attitudes or ability to perform complex mental tasks, according to a recent Air Force study of effects of ionized air on behavior.

During the investigation, groups of 50 male university students were subjected to three tests. The first required a subject to make rapid decisions which involve close attention to detail. The second required relatively infrequent responses to near-threshold stimuli. The third test consists of check-off lists to reveal the mental attitude of subjects at varying levels of ionization.

All tests were administered in a room wherein five different ionic

levels were controlled. Conditions ranged from a high excess of positive ions through a medium excess; low ion (neutral); medium negative; and low negative. Neither the attitudes nor the abilities of subjects to perform tests administered were affected by ion levels, according to the study.

Copies of the full 24-page report (PB 171 600) may be obtained from the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., at a cost of 75 cents each.

### **Ball Team Publicizes SM, Heating Industry**

MINEOLA, L. I., N. Y. — Long Island sports fans are interested in the new major league softball team, based in Huntington, which is making its first appearance on local diamonds this season. The team is called the "Climate Controllers" and is named after the Climate Control Council, the public service function of the Labor-Management Industry Fund of Sheet Metal Workers Union Local 55. (The Climate Control Council inspects the heating systems of homeowners seeking advice, diagnoses troubles and advises corrective measures.)

The team was established, primarily, as a recreational activity for sheet metal workers, both as participants and spectators. Several union members, who are also well known in Long Island as top softball players, are mainstays of the team. Both sheet metal contractors and union representatives are on its board of directors.

### **Basic Oil Burner Course Presented**

(Continued from page 24)

to Domestic Burners," "Nozzles and Nozzle Problems," "Pumps and Servicing," "Service and Installation of Forced Draft Oil-Fired Heating Equipment," "Combustion Instruments," and "Domestic Oil Burner Controls."

### **Heat Pumps to Be Certified Under ARI Program**

WASHINGTON, D.C. — A certification program for unitary heat pumps will be initiated by the Air-Conditioning and Refrigeration Institute as soon as test equipment can be installed and contracts and other preliminary details are completed, according to John A. Gilbreath, chairman of ARI's Unitary Air-Conditioner Section.

The program will include unitary heat pumps up to 135,000 Btuh cooling capacity, but will not include reverse-cycle room air conditioners. It will closely follow, in contractual relationships, procedures, and testing of equipment, the Unitary Air-Conditioner Certification Program, which has been in operation for more than two years.

As a prerequisite to approval of the program by the Unitary Air-Conditioner Section, a revised ARI Standard for Unitary Heat Pump Equipment (ARI Standard 240-61) has been published, Mr. Gilbreath said. The last previous revision, published in 1957, has been completely rewritten to provide a basis for the proposed certification program.

(More news on page 30)

### **Ship More Unitary Equipment**

WASHINGTON, D. C. — Manufacturers' shipments of unitary air conditioners, including heat pumps, in the first quarter of 1961 totaled 77,551 units, a gain of 23 percent over the total shipped in the first quarter of 1960, the Air-Conditioning and Refrigeration Institute reports.

Heat pump shipments in the first quarter of 1961 totaled 12,160 units, a gain of almost 60 percent over the same period in the previous year.

The figures released by ARI cover all unitary equipment, but do not include window or wall units.





# WHATEVER THE FUEL...WHATEVER THE JOB... THE BIG MAN IN VENTING IS A METALBESTOS DEALER

Why? Because he has a vent for every installation and the know-how for every job — residential, commercial and industrial. There's Metalbestos Gas Vent, 3" to 24", for quick, sure installations... the Metalbestos Chimney for liquid and solid fuels, fireplaces and incinerators. The Metalbestos Dealer is backed by trained field experts, a Venting Laboratory Serv-

ice, and the latest data at his fingertips for fast, economical installations — the new METALBESTOS GAS VENT TABLES AND HANDBOOK. For the full story, ask a nearby Metalbestos Distributor or Sales Representative, or write Dept. A, P.O. Box 137, Belmont, California.



  **METALBESTOS** DIVISION  
WILLIAM WALLACE COMPANY  
BELMONT, CALIFORNIA  
MANUFACTURING PLANTS IN BELMONT, CALIFORNIA • LOGAN, OHIO

## WHAT'S HAPPENING...

(Continued from page 28)

### Compare Number of Furnaces Used In New, Modernization Work

WASHINGTON, D.C. — To secure statistics on heating equipment installed in new housing, as compared with that used for modernization and replacement needs, the Building Materials Div. of the Business and Defense Services Administration, U.S. Department of Commerce, recently conducted a survey covering a large number of installers of heating equipment.

The questionnaire used in the survey was designed to distinguish between installations in new and old structures as well as to obtain data on the type of heating units installed. A report recently issued by the department summarizes the most important findings of the survey and pertains to 1959 operations. Additional discussion and analysis of the facts derived is planned for later publication.

Questionnaires were sent to a list of 7764 heating contractors and 5694 of the larger plumbing contractors. In addition, questionnaires were mailed to a selected list of approximately 2800 establishments whose business was the sale and distribution of fuel oils to obtain some measure of the extent to which they participated in the installation of heating equipment.

A total of 9456 reports was received, of which 6805 reported installations of heating equipment in 1959. Of the remaining 2651 reports, 411 reported no installations during that year; 1331 were not installers of heating equipment, selling service or fuel oil only; and 909 were no longer in business.

Respondents were not selected in a manner which would permit the making of "universe" estimates. Because of the qualified nature of the results obtained

from the type of sample used, the data is shown in terms of percent distributions. While no measurement of the statistical accuracy of the data can be made, BDSA points out, the results appear to be generally consistent with industry opinion in the field.

Heating systems are classified by two major groups, warm air and wet heat, or hydronic systems.

The data on electric heating systems indicates the number of installations using electric heat but does not show the equipment used. It should be noted that the electric installations reported are only those installed by heating contractors and represent only a small proportion of electric heat installations in 1959.

Following are some of the figures obtained which show the percentage distribution of warm air heating equipment installations in 1959 in new and existing structures.

- Central warm air furnaces, 0 to 150,000 Btuh — New construction, 69 percent; modernization, 31 percent. Over 150,000 Btuh — New construction, 67 percent; modernization, 33 percent.

- Floor furnaces, 0 to 75,000 Btuh — New construction, 51 percent; modernization, 49 percent. Over 75,000 Btuh — New construction, 74 percent; modernization, 26 percent.

- Wall Furnaces, 0 to 75,000 Btuh — New construction, 81 percent; modernization, 19 percent. Over 75,000 Btuh — New construction, 65 percent; modernization, 35 percent.

- Electric heating systems — New construction, 63 percent; modernization, 37 percent.

Type and size of equipment and

### Chamber Decries Proposal to Limit Travel Deductions

WASHINGTON, D. C. — Travel and entertainment expenses represent a necessary cost of operating most businesses, according to the Chamber of Commerce of the United States. As such, the Chamber says, they should continue to be deductible for income tax purposes.

The test of whether or not a business expense is properly allowable, Wallace M. Jensen, a member of the chamber's Taxation Committee, said, "should be left to the facts of the particular case, namely, was it ordinary and necessary?"

The proposal to halt all entertainment deduction and to limit travel deductions, if enacted, would be unfair, according to Mr. Jensen. He pointed out that the great majority of taxpayers "who make every effort to control their expenses and to limit their income tax deductions to those which are allowable should not be penalized."

type of fuel used, according to the survey, are as follows:

- Central warm air furnaces, 0 to 150,000 Btuh — Gas, 79 percent; oil, 20 percent; other fuels, 1 percent. Over 150,000 Btuh — Gas, 78 percent; oil, 21 percent; other fuels, 1 percent.

- Floor furnaces, 0 to 75,000 Btuh — Gas, 90 percent; oil, 10 percent. Over 75,000 Btuh — Gas, 86 percent; oil, 14 percent.

- Wall furnaces, 0 to 75,000 Btuh — Gas, 85 percent; oil, 15 percent. Over 75,000 Btuh — Gas, 93 percent; oil, 7 percent.

(More news on page 32)

Wouldn't it be great  
if somebody could make  
a compact combination of  
a gas furnace and  
electric air conditioner  
that would be easy to install  
outdoors?

What do you think  
this gray box is?



## **DUOPAC** year-round whole-house

climate conditioner by DAY & NIGHT. Only a thermostat and ductwork inside the house. Only DUOPAC outside, on the roof or a slab. And . . . Instant Waikiki Beach! No cooling coil to install in the house (it is factory-installed in the DUOPAC). No operating noise in the house (it is outside, too . . . what little there is). Yet the new DUOPAC, barely two feet high, heats and air-conditions the whole house, the whole year round. No venting needed! Gas and electrical connections are made outdoors. AGA-approved. See it now at your DAY & NIGHT distributor's, or write for details to:

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## WHAT'S HAPPENING...

(Continued from page 30)

### Gas Heating Customers At Record High: AGA

NEW YORK CITY — More homes are being heated with gas in the United States than ever before, according to the American Gas Association, which reports that an additional 1,171,000 customers installed gas heating last year. There were 21,352,000 customers heating with gas at the close of 1960, an increase of 5.8 percent over the previous year, according to AGA's annual gas house heating survey. The survey covers all forms of gas heating equipment, including central systems, direct space heaters, floor furnaces, and vented recessed wall heaters.

New customers accounted for 62 percent of the installations of gas heating in 1960. The remaining 38 percent made conversions from other fuels in existing dwellings. AGA noted that there was no national pattern, and that in some areas conversions outnumbered new installations.

Because of the continuing demand for gas heating, AGA estimated that in 1961, 1962 and 1963 a total of 2,377,000 homes will install gas heating and 1,187,000 existing houses will convert to gas.

### Report Increase In FHA Applications

WASHINGTON, D. C. — Preliminary figures for May of this year show that total applications on homes rose 19 percent above the preceding month to 81,000 units, according to the Federal Housing Administration. Multi-family applications rose 70 percent to 7500 units.

May applications on new homes increased 15 percent over April to 23,900 units.

### Steel Service Center Institute Names Shaw

WASHINGTON, D. C. — Ralph W. Shaw Jr. has been elected chairman of the Steel Service Center Institute's executive committee. Mr. Shaw, president of A. R. Purdy Co., Inc., Lyndhurst, N. J., has been in the steel distribution business for 27 years. He is a past president of the National Association of Aluminum Distributors.

Robert J. Heggie, president of A. M. Castle & Co., Chicago, was elected to serve as institute president.

### Seeks Ways to Build Less Expensive, More Comfortable Homes

WASHINGTON, D. C. — At a recent meeting of the Federal Housing Administration's Technical Studies Advisory Committee, FHA presented 33 proposals for review, discussion and committee recommendations as to the best approaches to solutions. Examples of some of the things discussed during the two-day session were such problems as how to develop a more economical, comfortable and durable home; how to solve basement seepage problems; and how to reduce impact noise transmission between apartments in multi-family projects.

FHA utilizes TSAC as a sounding board in determining how to obtain feasible and practical solutions to the problems which confront homeowners as well as the agency's staff of professional, technical and operation sections. The committee's role is of an advisory nature and it in no way dictates internal administrative policy.





The more crimping you have to do, the more satisfied you will be with Weirkote<sup>®</sup> Zinc-Coated Steel. There's no peeling, no chipping, no flaking. Work it to the limits of the steel base itself and the zinc coating remains intact assuring you of the complete corrosion protection that only zinc can give. Weirkote is made that way—to retain its protective zinc coating no matter how tough the forming and bending operations. A representative will gladly supply full information on Weirkote—another fine product of both Weirton Steel and Midwest Steel.



**MIDWEST STEEL**  
Portage, Indiana

**WEIRTON STEEL**  
Weirton, West Virginia



*divisions of*  
**NATIONAL STEEL CORPORATION**

# LOOK! 32 gas-fired and 19 oil-fired models in the complete new CARRIER furnace line!

There's a new Carrier Weather-maker\* Furnace to meet the needs of every customer in this restyled, redesigned, modern Weathermaker line. It includes gas-fired and oil-fired models... models for heating only and models designed for the easy addition of cooling... upflows, counterflows, horizontals and loboys. Look them over—note the complete range of models and capacities.

And that's not all. Carrier stands

behind you with the industry's most comprehensive programs for financial and technical assistance plus complete training in sales, installation and service that permits you to assure your customers complete comfort all winter long.

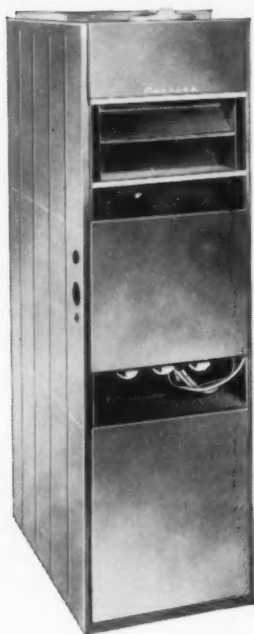
Get the profit picture of a Carrier dealership from your Carrier distributor, listed in the Yellow Pages. Or write Carrier Air Conditioning Company, Syracuse 1, New York.

\*Reg. U.S. Pat. Off.

**Carrier** Air Conditioning Company

# LOOK! 32 NEW CARRIER GAS-FIRED FURNACES

## BUDGET MODELS:



**7 UPFLOW** from 70,000 to 120,000 Btu input

**6 COUNTERFLOW** from 80,000 to 120,000 Btu input

**8 HORIZONTAL** from 80,000 to 125,000 Btu input

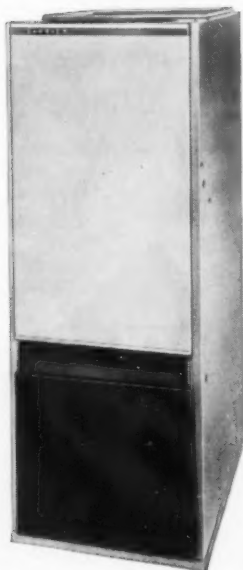
## STANDARD MODELS:

**6 UPFLOW** from 80,000 to 185,000 Btu input

**5 COUNTERFLOW** from 80,000 to 160,000 Btu input

**FAST FACTS:** All models with alloy steel burners, precision formed to provide equalized gas pressures for higher efficiency ... scientifically designed heat exchangers with high conductivity that prevents scaling temperatures ... automatic pilots with an adjustable flame positioned for prompt ignition ... blowers dynamically balanced for vibration-free performance ... standard equipment that includes thermostat and all conventional controls. A.G.A. and C.G.A. approval.

# LOOK! 19 NEW CARRIER OIL-FIRED FURNACES



**4 UPFLOW** from 85,000 to 125,000 Btu output

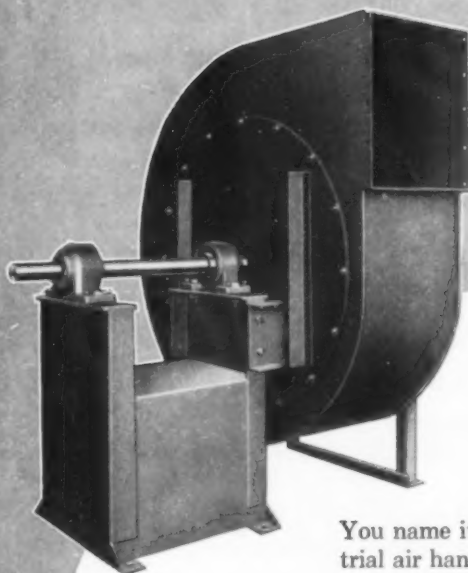
**3 COUNTERFLOW** from 85,000 to 125,000 Btu output

**7 HORIZONTAL** from 85,000 to 335,000 Btu output

**5 LOBOY** from 100,000 to 250,000 Btu output

**FAST FACTS:** Belt-driven models in all capacities plus a special direct-drive 85,000 Btu builder model ... with oversize blowers for add-on cooling ... completely enclosed vestibules ... heat exchangers of 14-gauge steel electrically welded and leakproof ... fan motors rubber mounted for quiet operation and with built-in thermal overload protection ... fans dynamically balanced for vibration-free performance ... standard equipment that includes thermostat and all conventional controls. U.L. approval.

# How does industry rate CLARAGE?



## EXAMPLE:

Over 1000 Clarage fans of this type are serving one manufacturer alone.

**RE-ORDERS . . . RE-ORDERS . . . RE-ORDERS**

You name it . . . Clarage has it for virtually any industrial air handling assignment.

Take the Type XL Fan shown. It's built in 16 sizes and four arrangements for volumes to 130,000 CFM, temperatures to 1000°F., pressures to 18". AMCA Certified Rating Seal applies to the three different wheels available—open, rim, and backplate types.

In the Clarage tradition of heavier duty construction, here is *quality* equipment assuring better results over a longer period of service. No wonder all 100 of America's 100 largest industrial corporations are Clarage users. If you too are after air handling and conditioning equipment that has what it takes—in every respect—contact our nearest sales engineering office.

## CERTIFIED RATINGS

Certified Ratings are the result of tests made by the manufacturer in accordance with Standard Test Codes adopted by the Air Moving and Conditioning Association, Inc. Air Moving and Conditioning Association, Inc. is a successor to Industrial Unit Heater Association, National Association of Fan Manufacturers, Inc. and Power Fan Manufacturers Association.

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# CLARAGE FAN COMPANY

*Kalamazoo, Michigan*

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Anthony Chronis, (left) President, Lisle Electric, Inc., Lisle, Ill. talking to Al Jones, his Dodge Representative on a job site.

## *"Dodge Reports saved our business in its early days ...today, they give us 1/3 of our volume"*

"Shortly after I took over this business, we lost an account that represented 50% of our volume," says Mr. Chronis. "We had to round up a corresponding amount in a very short time in order to remain in business at all. We did it through Dodge Reports which we had never used before."

"For the first three months of our subscription," Mr. Chronis explains, "we conducted an intensive promotional campaign based on Dodge leads. It was so successful that after those first three months we had all the business we could handle."

Mr. Chronis began with three men and three trucks, and restricted his contracts to residential construction. "Today," he says, "we have 10 men, five trucks and a trailer. We handle stores, houses and apartment buildings and are beginning to establish our reputation in electrical heating work, engineering and quality custom installations. Last year we completed more than \$160,000 worth of contracts, \$50,000 of which we picked up solely through Dodge information."

Mr. Chronis goes through each day's Dodge Reports himself, and carries the ones he wants to bid on in

his car. When he passes a prospect's site, he says, "I stop the car, walk through the mud and see the contractor on the spot. That's where I can sell our services, because Dodge Reports have told me all I need to know about the job. And, whenever our name appears in Dodge Reports to show that we've been awarded a contract, we feel that it's the best advertising our company can get anywhere."

Dodge Reports can help you get the new business you want, too—for only a fraction of the profits they'll help you earn. Send the coupon for further details. Or, consult your telephone directory for the Dodge office (in over 80 principal cities) nearest you.

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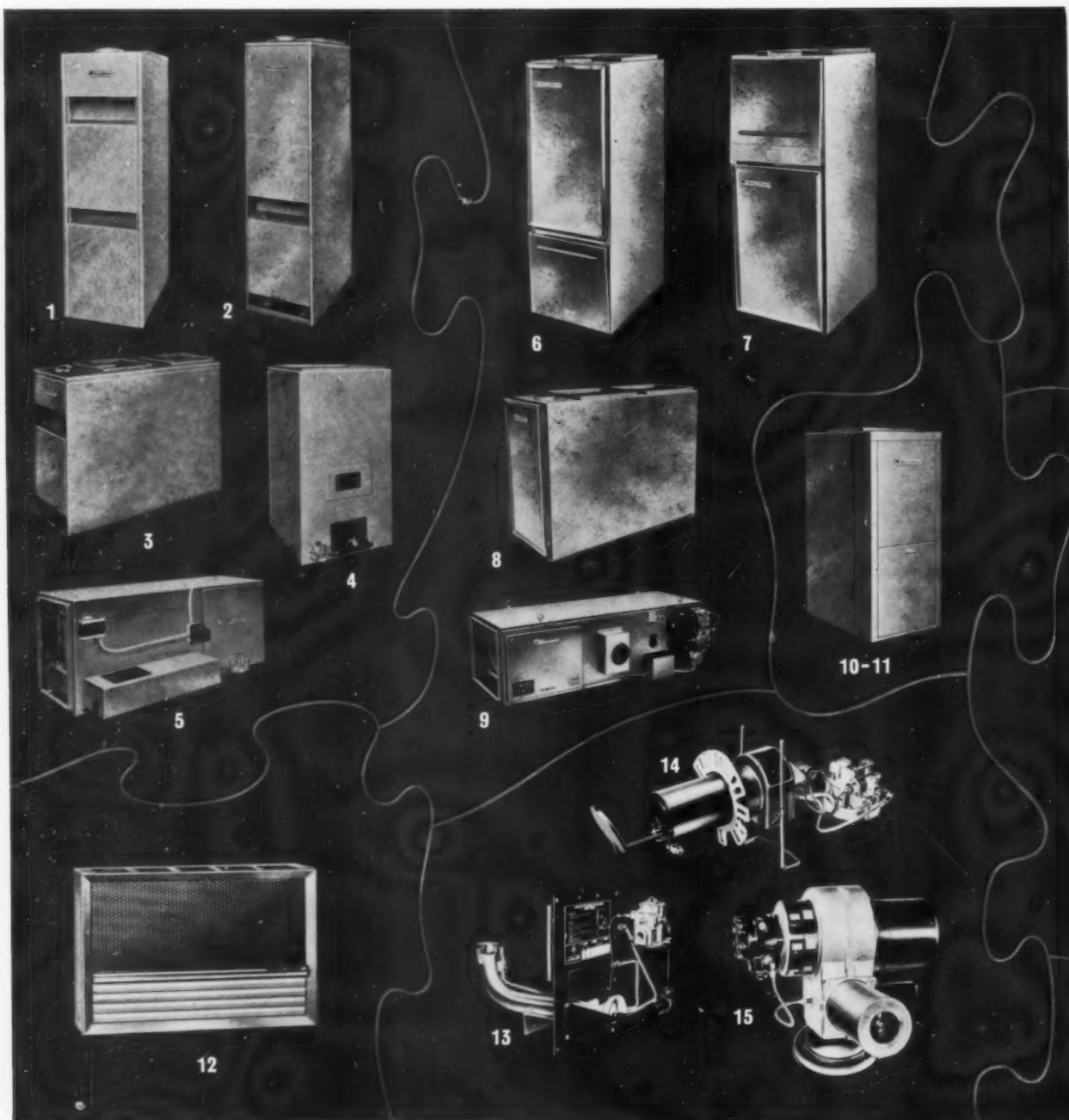
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#### **GAS-FIRED FURNACES**

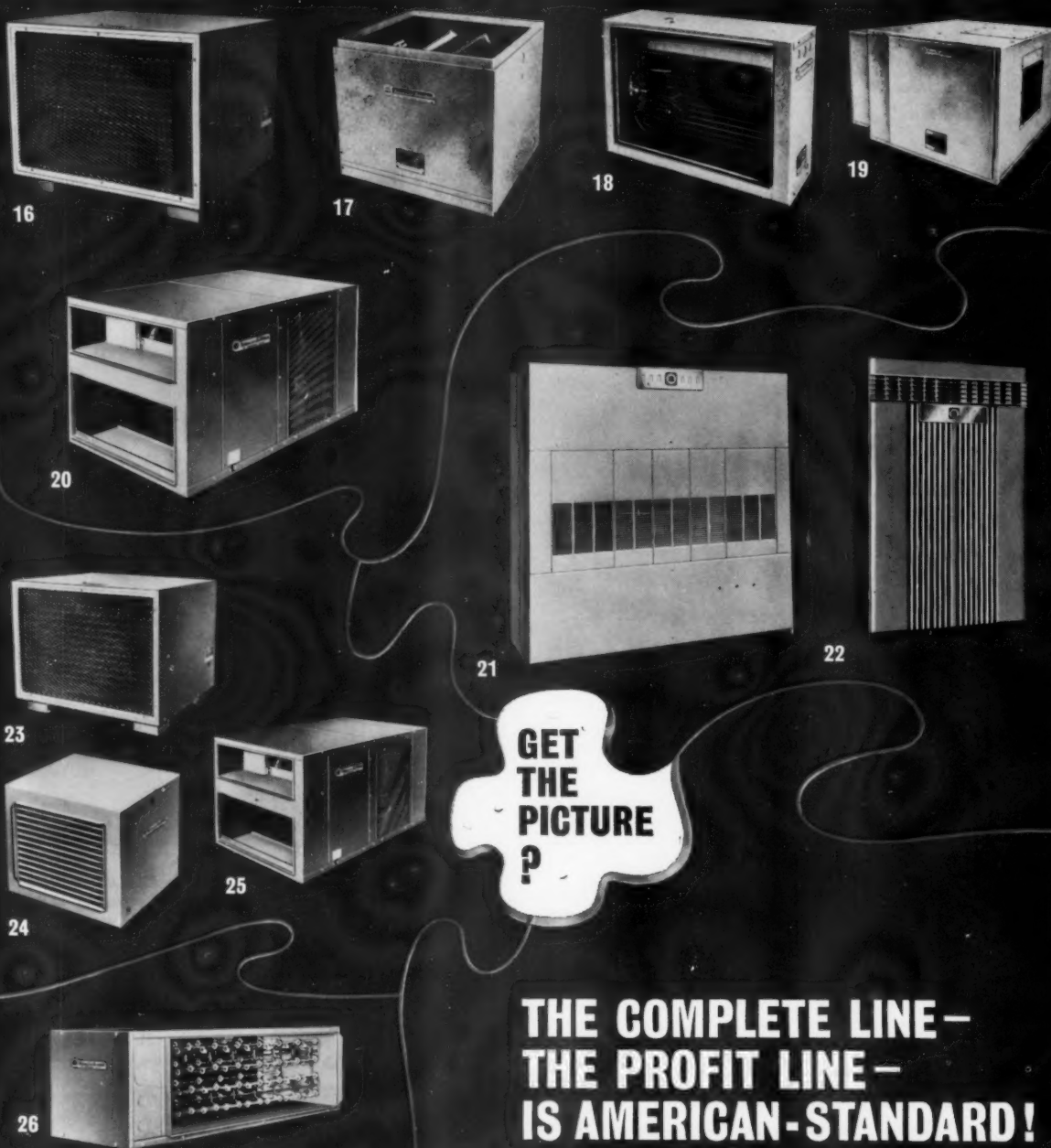
- (1) GUB: Upflow; 50,000 to 200,000 BTUH INPUT
- (2) GCA: Downflow; 75,000 to 150,000 BTUH INPUT
- (3) GLA: Basement; 75,000 to 300,000 BTUH INPUT
- (4) GGA: Gravity; 90,000 to 145,000 BTUH INPUT
- (5) GHA: Horizontal; 85,000 to 150,000 BTUH INPUT

#### **OIL-FIRED FURNACES**

- (6) U-OB: Upflow; 84,000 to 140,000 BTUH at Bonnet
- (7) CF-OB: Downflow; 84,000 to 140,000 BTUH at Bonnet
- (8) L-OB: Basement; 84,000 to 140,000 BTUH at Bonnet
- (9) HA-OB: Horizontal; 84,000 to 252,000 BTUH at Bonnet

#### **ELECTRIC FURNACES**

- (10) EUL/S: Upflow; 41,000 to 82,000 BTUH at Bonnet
- (11) ECL/S: Downflow; 41,000 to 82,000 BTUH at Bonnet



#### THROUGH-WALL VENTED HEATER

(12) VGH: Gas-fired Vented Heater; 10,000 to 30,000 BTUH

#### CONVERSION BURNERS

(13) GP: Gas Conversion Burner; 105,000 to 140,000 BTUH  
(14) GC: Gas Conversion Burner; 75,000 to 195,000 BTUH  
(15) ACD: Oil Conversion Burner; .7 to 3 GPH

#### AIR CONDITIONERS

(16) AC: Air-Cooled Condensing Unit; 2 to 7 ton  
(17) RC-VC: Upflow-Downflow Evaporator; 22,000-55,000 BTUH  
(18) RC-H: Horizontal Evaporator; 22,000 to 56,000 BTUH  
(19) RC-B: Blower-Evaporator; 22,000 to 76,000 BTUH  
(20) ACP: Air-Cooled Packaged Unit; 22,000 to 44,000 BTUH  
(21) CAC: Water-Cooled Units; 36,000 to 240,000 BTUH  
(22) CAC: Air-Cooled Units; 52,000 to 210,000 BTUH

#### HEAT PUMPS

(23) AC-BR: Heat Pump—Outside Unit; 3 and 5 H.P.  
(24) RC-BR: Heat Pump—Inside Unit; 3 and 5 H.P.  
(25) ACPR: Packaged Heat Pump; 2 to 5 H.P.

#### SUPPLEMENTAL HEATER

(26) SH: Supplemental Electric Heater; 13,600 to 54,700 BTUH



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## AMERICAN-Standard

AIR CONDITIONING DIVISION

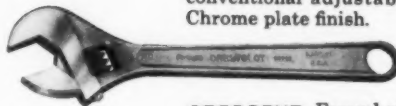


**GRIP** this Crescent adjustable wrench. Feel its perfect balance...its comfortable weight. Shake it...there's no rattle or clank. Slide your thumb across the knurl. See how easily and precisely the jaw moves from "closed" to "full-open" without a hitch.

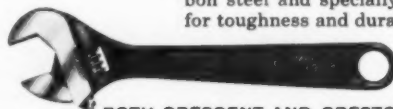
These are the obvious things that tell you this is a Crescent wrench. Not so obvious (but there just the same) is the infinite care that goes into its manufacture. No less than eighty separate and painstaking steps are taken in producing this tool...from the first ear-splitting sock of the drop hammer on white-hot steel alloy to the final hand-polishing and individual strength test.

All Crescent hand tools are made with precision like this. That's why Crescent quality has stood unmatched for more than half a century.

**CRESTOLOV.** Forged of super-hard Crestoloy Steel. 200% stronger than conventional adjustable wrenches. Chrome plate finish.



**CRESCENT.** Forged of selected carbon steel and specially heat-treated for toughness and durability.



BOTH CRESCENT AND CRESTOLOV WRENCHES CARRY THE SAME CRESCENT GUARANTEE OF LASTING QUALITY.

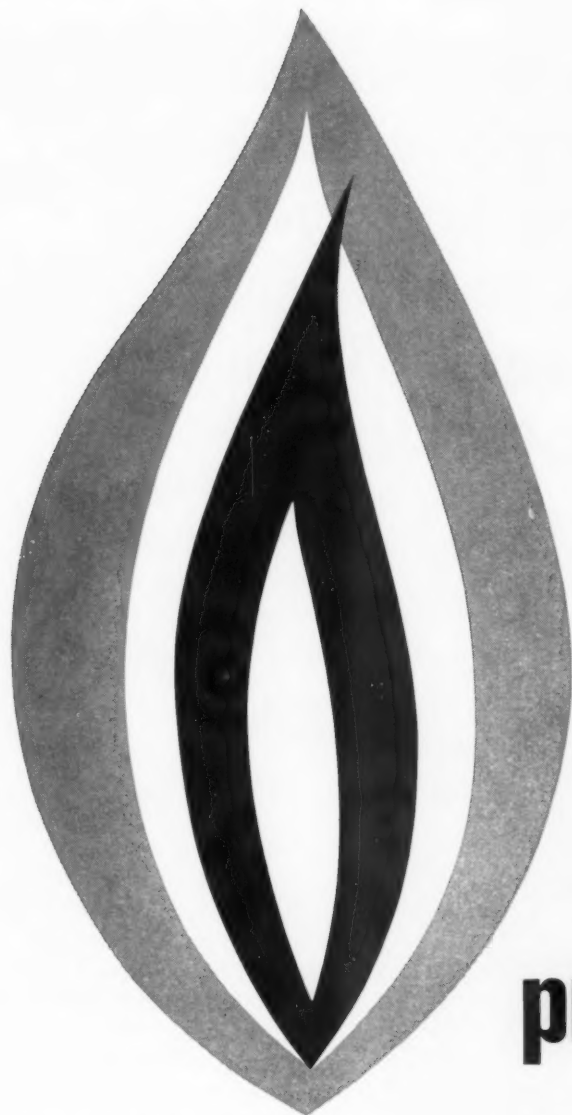
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**CRESCENT TOOLS**  
*Give Wings to Work*

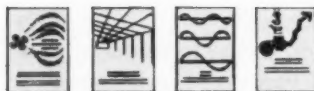


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# how to overcome basic heating problems



**FREE FROM REZNOR:**

Four new "Reznor Heating Handbooks" to help you solve common and uncommon problems in commercial and industrial heating.

In these new handbooks, published by the manufacturer of the world's largest selling gas unit heaters, you'll find the latest information on how to use unit heaters and

duct furnaces most efficiently in industrial and commercial installations. Also discussed are such problems as how to design a make-up air system, how to control temperature with direct fired unit heaters, and how to use duct furnaces in heating-cooling systems.

We think you'll find these handbooks valuable as basic working tools. To receive your copies, call your Reznor full-service distributor or nearby district office listed in the Yellow Pages under "Heaters—Unit." Reznor Manufacturing Co., Dept. AA-8, Mercer, Pa.



## REZNOR HEATERS



K-1385

Here is the tool that permanently anchors a duct strap to concrete with less than ten taps of a hammer. Without drilling or plugging.

It's called Shure-Set.<sup>®</sup>

It does plenty of other fastening jobs too. Junction boxes, conduit clips, gutters. Heaters, signs, Wiremold. Using Shure-Set you can attach almost anything to concrete and other masonry materials. And you do it rapidly.

How is it possible? A special steel fastener is inserted at one end of Shure-Set, your hammer blow is directed against the large movable anvil at the other end. The easy-to-hit anvil concentrates the force of the hammer blow onto the fastener, but within the confines of Shure-Set's precision bore. The fastener can't waver or skew off. Every swing of the hammer drives it straight and true into the concrete. (Note: powder charges are *not* used in this tool.)

And Shure-Set's austempered steel fasteners *never* bend or break. Austempering has given them the ideal metallurgical properties for penetrating hard construction materials (it's the same

heat treatment we give our *powder-driven* fasteners). These steel drive pins ("nails") and threaded studs make a strong, permanent, compressive bond to concrete. For a light-duty fastening, you won't find anything stronger.

And for the few cases—such as tile or glazed brick—where "tap-and-turn" work is unavoidable, a drill holder attachment is provided for converting Shure-Set into a superior masonry drill. Still another attachment fits it for use in fastening sheet metal to sheet metal.

Shure-Set is on its way to becoming a tool box standard because of its immense versatility. And because it pays for itself by saving time. Usually on the very first job. It also saves a lot of (put your own price on it) perspiration.

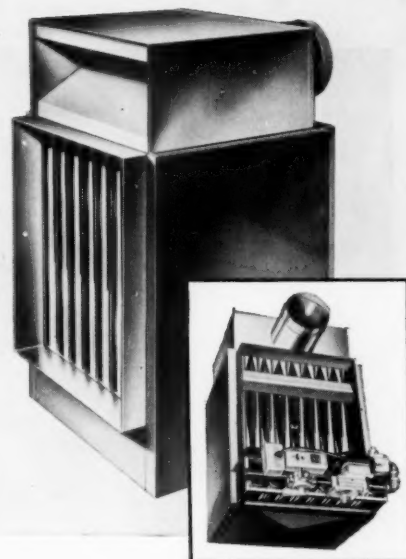
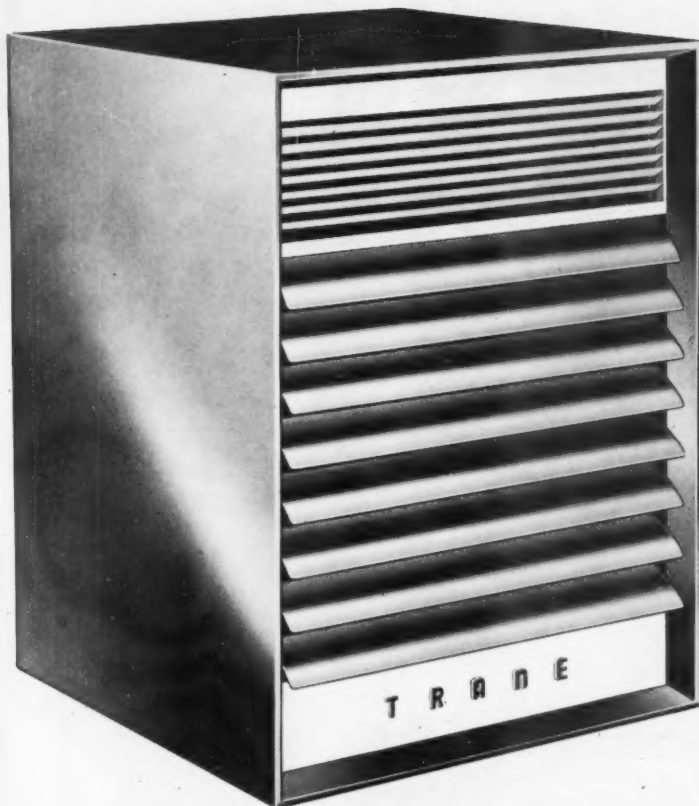
To find out where to buy Shure-Set nearest you, look under TOOLS in the Yellow Pages of your directory.



306-H Winchester Ave., New Haven 4, Conn.

WINCHESTER-WESTERN DIVISION

**Olin**



**Duct heater** is AGA approved for downstream operation from cooling units without by-pass. Provides heating cycle for remote cooling units, such as the TRANE Self-Contained Air Conditioner. Drain pan (shown in inset) is standard equipment. The unit has low static resistance, is of aluminized construction. Adjustable modulating valve reduces input as much as 75%. 2-stage, 2-input valve available.

**Propeller-type heater** uses a new, quiet TRANE Fan that is designed exclusively for unit heaters. Access door on bottom of casing makes unit easy to clean. Complete range of sizes from 33,000 to 250,000 Btuh input.

## New Trane gas-fired heaters have advanced styling, compact design!

### *High-performance blower and propeller units—plus duct models approved for downstream operation*

Here's a new line of gas-fired heaters from TRANE that combines smart, modern appearance with peak performance and versatility! These TRANE Heaters are ruggedly built for long life—yet they're light in weight, compactly designed for use where space is at a premium.

Three basic types are available: propeller, duct and blower. All models feature an aluminized steel, all-welded heat exchanger that assures long, trouble-free operation. The steel, ribbon-type burners have stainless steel inserts. And the burners are removable individually for service and maintenance.

**Blower-type heater** uses a forward-curved centrifugal fan. Free delivery or duct work installation; adjustable fan belts to provide proper air delivery against varying static pressures. Streamlined fan inlet for exceptionally quiet operation. Louver-Fin Diffusers increase air throw. Sizes from 33,000 to 250,000 Btuh input.



The TRANE Duct Heater may be used for downstream operation, for use with remote cooling units (such as the TRANE Self-Contained Air Conditioner). All parts of the duct heater that are exposed to the cold air stream are of aluminized construction—including the drain pan, which is standard equipment.

True 2-speed, 2-input propeller units available in 5 sizes. The motor speed and gas input can be automatically cycled to maintain more even temperatures; to provide greater operating economy.

The light weight of these new TRANE Heaters means more Btu's per pound. Freight costs are lower; and installation is simplified: minimizes the need for expensive structural reinforcement.

**WANT MORE FACTS** on these gas-fired heaters? Just ask your nearby TRANE Sales Office; or write TRANE, La Crosse, Wisconsin.

**For any air condition, turn to**

# TRANE

MANUFACTURING ENGINEERS OF AIR CONDITIONING, HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS. • SCRANTON MFG. PLANT, SCRANTON, PA.  
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LAKE CITY, UTAH • TRANE COMPANY OF CANADA, LIMITED, TORONTO  
101 U.S. AND 20 CANADIAN OFFICES



## *Bethcon galvanized steel sheets permit long spans, minimum supports*

Strong and rigid—because they're steel—Bethcon galvanized sheets form up into strong and rigid ductwork which requires a minimum number of supporting brackets.

In addition, a Bethcon galvanized steel sheet is just right for easy shopwork . . . not too hard, not too soft. That's because we use a special annealing cycle which

gives the sheet an ideal balance of ductility and strength.

Bethcon's zinc coating is second to none for its refusal to flake or peel off. Bethlehem's continuous galvanizing process bonds zinc to steel so tightly that even when the sheet is doubled back on itself, the coating stays put. Hemming without puckering or wrinkling is

no problem with Bethcon sheets.

You can specify Bethcon galvanized sheets in a wide variety of gages, with either plain open-hearth or copper-bearing (Beth-Cu-Loy) steel for the base metal. We'll be glad to furnish any details you need. Just get in touch with our nearest sales office.



for Strength  
... Economy  
... Versatility

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Sales: Bethlehem Steel Export Corporation

# **BETHLEHEM STEEL**





# NEW

FROM

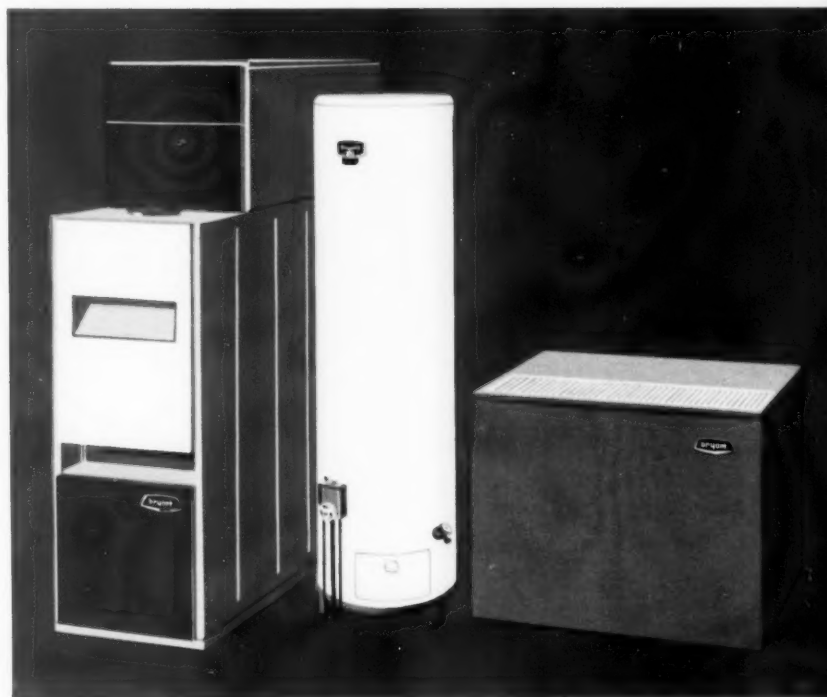
**bryant**



SPECIAL BUILDER PROPOSITION ON BRYANT HOME COMFORT CORE FOR TRACT HOMES AND APARTMENTS

## KNOCKS SOX Off

THE "UNDER-\$500-EXTRA"  
INSTALLED PRICE OF COM-  
PLETE HOME COOLING  
REPORTED AT HOUSE &  
HOMES' RECENT BUILDERS'  
ROUND TABLE (House & Home, April, 1961)



BRYANT HOME COMFORT CORE includes furnace styled by Raymond Loewy, condenser, cooling coil and housing, thermostat and sub-base (heating-cooling). Water Heater optional.

For details on the Bryant "Builder Proposition" call immediately your local Bryant Distributor, Factory Branch — or D. W. Hoppock, Vice President, Bryant Manufacturing Company (MElrose 2-5471), Indianapolis, Indiana.

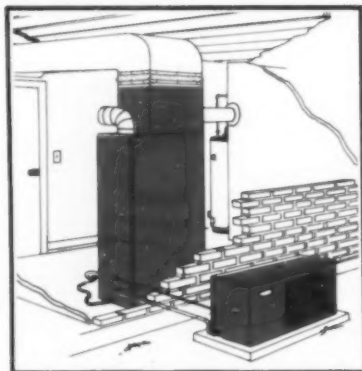
# THE PROPOSITION YOU'VE WANTED!

Bryant's special "Builder Proposition" is set up to give you either a profit and/or a "sure-fire" selling advantage you have needed in going after tract home and apartment business. There are no "gimmicks", no "iffys". It is a clear-cut business proposition geared to your needs. You get regular Bryant quality products. We have placed Bryant's reputation squarely behind our offer. To get the details on how well you can make out please call immediately your local Bryant distributor, factory branch — or D. W. Hoppock, Vice President, Bryant Manufacturing Company, Indianapolis, Indiana.

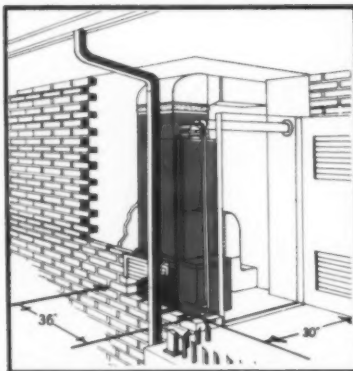
**EXTRA-PROFIT-ARITHMETIC** We would like to show you the figures that prove that you can clear a good profit on every home you equip (and get a lot more of them) with a Bryant Home Comfort Core.

**GET THE "JUMP ON COMPETITION"** You can now offer year 'round air conditioning to tract home and apartment builders, for a few dollars more than comparable homes without it.

## NEW SPACE-LABOR-MONEY SAVING DESIGN



**FOR HOMES AND GARDEN APARTMENTS.** This view shows how unit can be placed within 4 inches of outside wall with no sacrifice of operating efficiency. Extended tubing permits fast, fool-proof installation.



**FOR APARTMENTS.** This view shows condenser, furnace, cooling coil and ducting housed in an outside closet only 30" x 36". Note how condensate drains directly into downspout.

**SOLID LOCAL SUPPORT** in layout, sizing and supervision of jobs by factory-trained air conditioning specialists, is available through your local Bryant Distributor or Factory Branch.



**COMPLETE HOME COMFORT CORE**  
The cooling coil, 2-ton condensing unit and 80,000 Btu furnace are combined in a compact yet easy to service package. In stack-on installation, furnace opening is provided in condenser cover.

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## ***The Eternal Sales Question:***

### **When is the Right Time to Try for a Close?**

ONE OF THE LEAST recognized intangibles that a salesman must be able to readily identify is the time to try to close a sale.

Some salesmen seem to have the knack of asking for the order at just the right time, with the result that they are always near the top of the dollar volume closed at the end of each month.

We've interviewed a number of dealer-contractors' salesmen during the past year, and here is a composite of what they've told us about their closing techniques.

Each sale — say good salesmen — is different; thus, there is no exact duplication of a presentation. One prospect may have already made up his mind to buy, wanting only a few more facts before committing himself. Other prospects are uncertain as to whether they want to buy this year or some time in the distant future when they think they may be in a better position to assume the financial obligation.

The latter type prospect must be given the full presentation and then some to make a sale, while the first type's major interest can be determined and explained.

Clues that help the salesman to identify his prospect are known as trial closers, and successful salesmen tell us it's a challenge to their ability to quickly identify their prospects and to determine the presentation pattern.

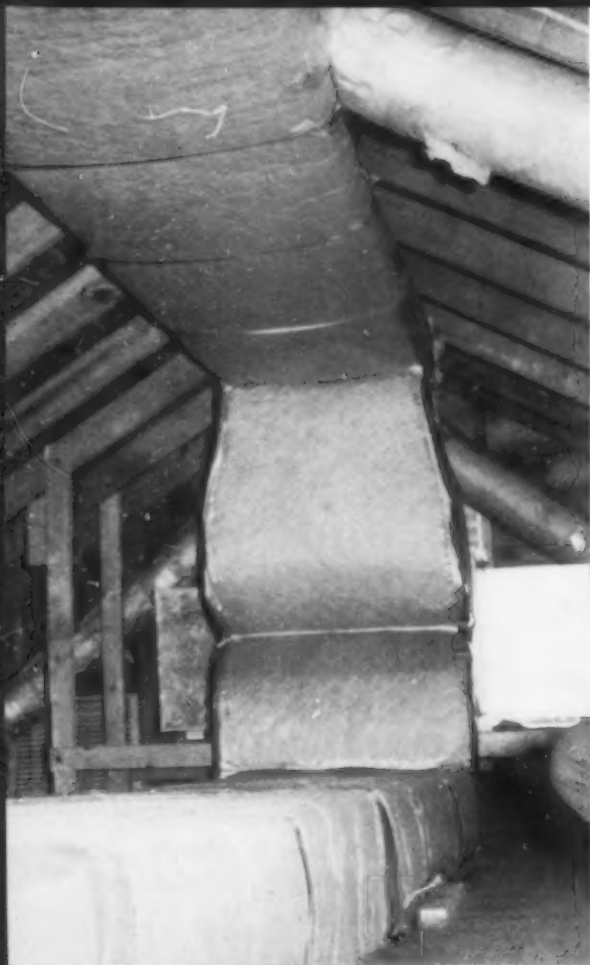
Trial closers are generally exploratory questions that are phrased to motivate the prospect to commit himself and reveal his primary interests. Questions must be based on environment and on the product being sold. A salesman making a cold canvass call on a housewife would use different exploratory questions than he would if the contact was the result of a company advertisement.

Leading questions used by those salesmen we interviewed demonstrate a successful pattern. For instance, when they make a house call on a husband and wife in response to an appointment to tell them about modernizing their present heating system, they ask questions that relate to the failure of the existing equipment and system to meet the comfort desired.

The first try for an early close comes from such questions as: "When would you want us to begin work?" If the prospect fails to commit himself, a more positive trial can be used, such as: "Which of these two models would you like us to install?"

Both of these trial closers help to establish the prospect's willingness to buy and quickly tell the salesman the type of presentation that he must make to bring the prospect to accept his recommendations.





SUPPLY AND return ducts for a summer air conditioning system were located in a ventilated attic

# Separate Duct

**Staggered partition walls  
in old two story house  
restricts installation  
of  
new stacks needed for  
summer air volume**

**By Larry Studnicky Jr.  
Mueller-Climatrol**

MODERNIZATION of air distribution systems in old houses offers a challenge to the engineering skill of the best informed dealer-contractors. Experience gained over the years often provides clues to the alteration that will give best results. It was this kind of experience with modernization work that staff members of Grover C. Chase Co., Collingswood, N.J., relied upon in installing complete year 'round air conditioning in a 21 year old, two-story, nine room, colonial style house.

Experience with houses of this type had shown that seldom do partition walls on first and second floors make it possible to install new ducts in stud spaces that would permit the use of baseboard or sidewall diffusers. Familiarity with house construction has been

very helpful to company employees since 1911, when Grover C. Chase started the company. The area's first automatically operated forced warm air system was installed by Mr. Chase in 1923. Now his two sons, Frank J. and John J., are operating the company. These two men have lived warm air heating since they were old enough to realize the kind of business their father operated. They now apply the techniques taught them by their father.

## **Describes Complete Line**

One of the first things that the elder Chase taught his sons was to fully explain to each prospect every product the company sells, and to show how these products can contribute to the prospect's

over-all enjoyment of his home. Frank Chase says, "We try to sell each prospect on the value of year 'round air conditioning, and begin by describing our entire 'repertoire' of equipment. We show how temperature, humidity, air cleaning and air circulation, properly controlled, can provide year 'round comfort beyond the comprehension of most homeowners."

## **Separate Duct System Used**

Year 'round air conditioning for the house described in this article was provided by the use of two separate duct systems. One duct system was originally used with the furnace installed in 1941 and which was replaced by a modern furnace. The furnace has been relocated and a graduated duct



# Systems Unravel Year 'Round

## Modernization Problems

system was used to connect existing branch ducts to the first and second floors. The heating system includes an electronic air cleaner and an electric humidifier.

A separate duct system is used to distribute air from the cooling equipment located in the attic. An attic ventilating fan is used to obtain an air change every five-minutes. This attic duct system uses an insulated overhead supply duct with 11 branch takeoffs at appropriate points for connection to downcomer stacks located in accessible spaces of the second floor. The return duct is connected to the summer air conditioning equipment which is a through-the-wall packaged type unit containing a heavy-duty coil specifically designed for a high ratio of latent heat removal.

### Five Sided Supply Duct

The insulated supply duct is located in the space beneath the peak of the attic and has been designed to take up a minimum of space. This five-sided duct (as shown in the illustration) is shaped to fit in the space formed where the rafters join the ridge pole. It has two short sides and a wide, flat bottom. The supply trunk is a graduated duct system with reductions being made after each branch takeoff and has been designed to handle 1200 cfm at 0.2 in. external static pressure.

In order to provide an area equal to that of a standard size rectangular duct, the five-sided duct was made 20 percent larger to compensate for any additional



A SHORT section of the five sided duct designed to fit against the roof peak is being placed by John Chase

friction loss created by the shape of the duct. The entire length of the supply trunk was 30 ft. This type of duct helped maintain attic headroom needed by the homeowner, since he frequently uses the attic to store clothing and household equipment.

### Supply Air to First Floor

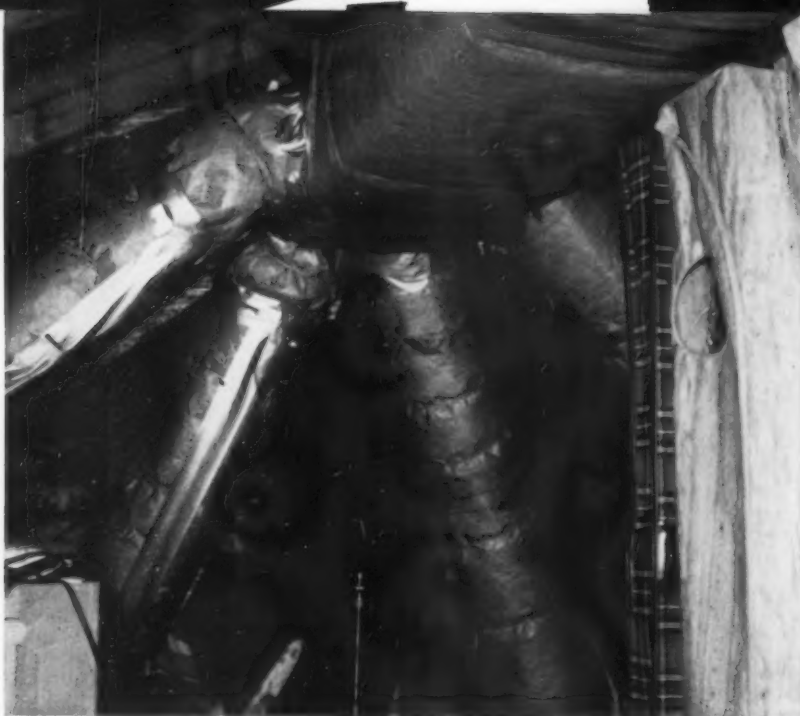
Branch ducts have been taken through four closets on the second floor to provide summer air conditioning for the first floor. These ducts are insulated and boxed in

with a  $\frac{1}{4}$  in. plywood covering. Other branch ducts ( $3\frac{1}{4}$  x 12 in.) have been pushed through partition walls from the attic to serve the second floor.

Branch duct takeoffs from the five-sided duct use square to round fittings and are 6 x 12 in. to 8 in. round.

The ductwork is fastened to the rafters with standard duct hangers, spaced at 3 ft intervals. Also 16 ga angle iron braces across the bottom are used to support the weight of the supply trunk.

The self-contained through-the-



BRANCH ducts located at the far end of the graduated extended duct system made it possible for the homeowner to continue to use the attic for seasonal storage of clothing and other household goods

continued . . .

## What To Do When Installing Equipment in Attics

wall summer air conditioning unit is set upon a wooden deck platform suspended from the roof rafters. This arrangement helps to compensate for some of the mechanical vibration transmission that could occur when equipment is placed on an attic floor.

Placed under the packaged equipment is a pan fabricated from 0.051 aluminum. The purpose of the pan and connecting drain is to carry off any condensation that may take place. Further noise transmission is reduced by the use of 1 in. synthetic rubber cushions placed beneath the equipment.

### Uses Continuous Air Flow

Asbestos type canvas connections (6 in. wide) are used to reduce noise transmission between the mechanical equipment and the supply and return ducts.

Location of diffusers and return air grilles is so arranged that air is introduced into all rooms of the

house from both the heating and cooling air distribution systems during summer operation. In other words, the furnace blower is operated 12 months a year to provide continuous air circulation through the heating air distribution system. Air is filtered by an electronic air cleaner located in the furnace.

The air volume for the heating system is 800 cfm, and the supply duct system was designed to operate at 0.1 external static pressure. The summer air conditioning air volume is 1200 cfm, representing a total air volume of 2000 cfm circulating throughout the house during summer operation. Mechanical air filters are installed at the packaged cooling unit to provide protection for the cooling coil.

### Humidity Balance Maintained

The cooling equipment has been selected to provide a 52 percent relative humidity under design conditions of 80 F. A combination heating-cooling thermostat is used

to automatically control the system. Further control over humidity is accomplished through the operation of a two-stage condensing unit. The first stage provides 22,000 Btuh cooling with a 5½ pint per hour dehumidification capacity.

### Dehumidification Cycle

With the addition of the second stage, the total capacity is increased to 42,000 Btuh with dehumidification raised to 11½ pints per hour. There is a third arrangement, known as the dehumidification cycle, where 6 pints of moisture removal per hour is possible.

The dehumidification cycle uses a reheat coil placed down-stream of the regular cooling coils. Hot refrigerant vapors are passed from the compressor through this reheat coil thus warming the cooled, dehumidified air to the original room temperature on days when cooling is not required.

The attic is ventilated by a four-



THIS TWENTY-ONE year old colonial style home was air conditioned by the installation of a packaged type summer air conditioning unit located in the ventilated attic. Air for the air cooled condenser was obtained through the lower set of louvers shown in the photograph below. The upper set of louvers are for the introduction of outside air for ventilating the attic by a fan located in a dormer at the back of the building



bladed propeller type fan that draws air in from each end of its 35 ft length, and discharges it through a dormer located at the rear of the house. By maintaining the attic under forced ventilation, much of the heat load from the roof is removed, providing a more suitable environment for ducts which are located in attic space.

During winter operation, only the heating air distribution system is used. This system not only includes the electronic air cleaner located in the blower compartment

of the lowboy furnace, but also a humidifier with an electric heating element to provide positive humidification control. This control is achieved by the use of a humidistat located in the living area and normally set for 35 percent; adjustment is under control of the homeowner.

#### **Operating Manual Prepared**

The family living in the house consists of two adults and two children. The owner is an electrical engineer who, after having



A NEW KITCHEN supply opening being adjusted by Frank Chase is connected to a duct that had been brought down from the attic through a second floor clothes closet

listened to the sales presentation of Frank Chase, has prepared for his own use an "owner's manual" in which he has listed all the equipment capacities, model and serial numbers. Also included is a description of each electrical circuit and a diagram of the interlocked control circuits.

One copy of this information manual is contained in the folder fastened to the equipment, and will be of considerable assistance to servicemen responding to calls for service on periodic preventive maintenance calls.



THIS FUNERAL HOME is year 'round air conditioned with two 3 ton roof-mounted heat pumps.

## ***How Variable Heat Loads of A Mortuary Are Handled***

**Peak occupancy loads often  
require cooling capacity  
during coldest winter months**

**By Richard L. Watson**  
**Peerless Heating and Air Conditioning**

YEAR 'ROUND air conditioning of a mortuary involves several problems that are not common to other types of air conditioning installations. One of the requirements of equipment selected for these applications is its ability to handle quick changes in occupancy loads.

### **Quick Changeover Needed**

Equipment must be able to automatically change from heating to cooling — even during the winter — when the internal heat load surges upward, due to large numbers of persons entering a chapel for a scheduled funeral service.

Equipment must also be sensi-

tive to a quick decrease in occupancy load when the service has ended and only members of the immediate family remain.

It has been found that air to air heat pumps have very satisfactorily met this demand for quick changeover from heating to cooling and back again to heating. One installation we made in 1958, and for which complete electrical records were kept for a year, show both the desirability of using air to air heat pumps, and the ability of the equipment to perform according to the demands placed upon it. (See Table 1.) In the words of George W. Usher, Indianapolis funeral director, "Our systems have performed most sat-

isfactorily throughout the year, and their annual cost of operation is well within the figure I felt was reasonable."

### **Equipment Space Required**

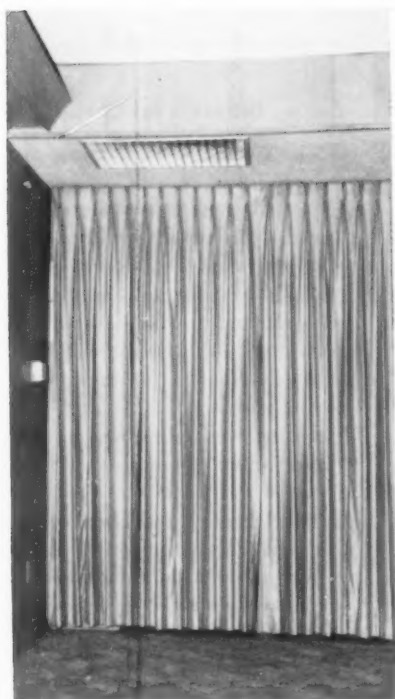
When we were called in to bid on this job, we noted that the architect had not provided space for heating and air conditioning equipment, nor had he specified a chimney. Both of these omissions, whether it was on purpose or accidental, fitted in with our recommendations for the use of two roof-mounted air to air heat pump systems.

In our proposal, we pointed out that the absence of a chimney





SUPPLY AIR for the chapel is from ceiling diffusers spaced at short intervals to achieve maximum air mixing at low velocity before conditioned air can reach occupants of the room



AIR MUST be removed from chapel without occupants being aware of air movement. To achieve this, return air openings are located in inconspicuous places such as corner ceiling locations (left) and at floor level in rear of room (above) which is seldom occupied

continued . . .

## Roof-Mounted Units Answer Space Limitations in Mortuary

would require an additional expenditure for its erection, as would providing the space needed for location of a furnace and air handling equipment.

When we were awarded the contract, we proceeded to install

two 3 ton remote condensing unit heat pumps, each connected with an individual air distribution system located above the ceiling of the funeral home.

The funeral home has two chapels (the largest, 27 x 57 ft, ca-

pable of a seating capacity up to 175 persons), with a family room adjacent to each of the chapels. These rooms are capable of seating 15 persons each.

### Split Cooling Load

The air distribution systems are so arranged that one heat pump will supply air for the front half of each chapel and one of the family rooms, also providing conditioned air to the casket display area.

The other air distribution system supplies air to the back half of each chapel and one family room, the reception hall, vestibule, and office area. Each system is controlled by its own thermostat.

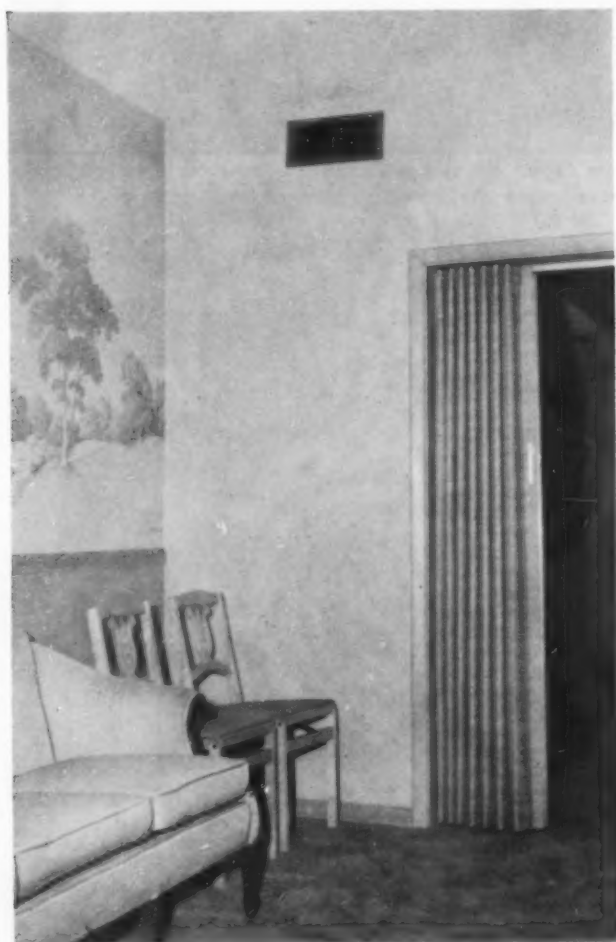
### Ceiling Diffusers for Chapel

Air is supplied from numerous ceiling outlets in the chapel to obtain adequate dispersion within the conditioned area with minimum air velocity. Since these rooms must be very quiet during services, no air noise would be permitted by the funeral director.

Air distribution for the family rooms, reception hall, casket display room and office was accomplished with high sidewall diffusers.

Large central return air opening were placed in inconspicuous locations so that air motion would not be noticed by occupants within the chapel.

Ten percent outside air is introduced into the system for ven-



HIGH SIDEWALL diffusers are used for the family room, office, reception hall and casket display rooms



ONE OF TWO roof-mounted remote heat pumps, located adjacent to the penthouse for the indoor fan-coil section, is examined by the author, Richard L. Watson

tilation purposes. The thermostat setting is 70 F, and remains at this setting summer and winter. Maintaining a 70 F temperature in the building the year 'round, provides a reserve capacity to handle part of the heavy occupancy load that occurs during peak periods when a service is in progress.

The thermostat is a combination heating and cooling thermostat, and automatically switches from heating to cooling and back to heating again, depending on the load placed on the equipment. It is not unusual for the cooling cycle of the heat pump to function for short periods during services conducted in the middle of winter.

#### Strip Heaters Added

To provide supplemental heat during the winter when the outside air temperature is too low to provide sufficient extracted heat from the outside air, three strip heaters were installed in each air distribution system. These strip heaters (each rated at 5 kw) are energized in stages. If there is a  $1\frac{1}{2}$  deg variation in room tem-

TABLE 1 Total power requirements for heating and air conditioning, lighting, etc., during 1959 is shown in the data copied from submitted bills.

12/22/58-1/21/59	\$182.85	6/22/59-7/23/59	124.25
1/21/59-2/20/59	189.83	7/23/59-8/21/59	92.10
2/20/59-3/24/59	146.47	8/21/59-9/22/59	89.20
3/24/59-4/23/59	102.25	9/22/59-10/22/59	69.04
4/23/59-5/22/59	45.54*	10/22/59-11/19/59	111.55
5/22/59-6/22/59	51.10	11/19/59-12/21/59	166.60

\*A fair estimate of the power used for other than heating and air conditioning is reflected in the \$45.54 bill for the period April 23 through May 22.

This period included considerable temperate weather, requiring only the operation of the ventilating system. Actual cost of operation for either heating or cooling for any particular period could be closely estimated by subtracting \$45.54 from the 30 day period of interest.

Power bills easily identify periods of extreme weather, either for the coldest or hottest months of the year.

perature below its setting of 70 F, one strip heater will cut in.

If, with one strip heater on, the capacity delivered by the strip heater is not sufficient to reach the 70 F thermostat setting, the second stage will cut in; if this is insufficient, as may be the case on an extremely cold day, the third strip heater will become energized.

Ductwork located above the ceiling has been wrapped with a 2 in. blanket of insulation to prevent heat loss in winter and heat gain during the summer.

Because space was not available to conveniently locate the fan-coil section of the heat pump in the usable portion of the building, it was located in a small penthouse built adjacent to an upper roof. A side access opening was included for servicing and cleaning.

#### Condensing Units on Roof

The condensing units were top discharge mounted models placed on the upper roof, and connected with the indoor fan-coil sections by insulated copper tubing.



## PRACTICAL SOLUTIONS TO AIR CONDITIONING PROBLEMS

By S. W. REID  
Air Conditioning Engineer  
Gilbert Associates, Inc.

# What Conditions

**Homeowner living habits that deviate from those used to design the system and select the equipment can be one source of high operating costs**

YOU ARE AN air conditioning contractor. Until a few minutes ago you had a general sense of satisfaction with your progress in residential and small commercial summer air conditioning. Through much effort you had developed in a speculative builder a genuine interest in year 'round air conditioning for the houses he builds. Everything you told him worked out nicely on the first several jobs. Cost estimates were proven, temperature conditions were achieved, the new buyers appeared to be happy with their air conditioned homes, and the builder's confidence in your company was growing.

The reason for the sudden change in your outlook was a phone call from your builder friend. You could sense his con-

cern as he told you how one of his customers had decended upon him with electric power bills. "You told us that summer air conditioning would cost about \$80 to \$90 per year to operate. Here are our bills from May through July. Looks like we've almost spent what you told us, and the season isn't nearly over. We didn't count on this. What can you do?" The customer's concern had worried the builder.

### Recheck Estimate

Yes, what could the builder do but call you, the expert. As he tells you his troubles, your mind is flashing back to one of your early meetings with him. He knew the question of operating cost would be asked by his prospects, so he

had asked you to prepare such an estimate. "That's right," you tell him. "I remember making that estimate. Seems to me it was conservative, too. Let me check the figures, and I'll call you."

And so you dig out your calculations and find that the system in question has a total power input of 3.2 kw for the compressor, air cooled condenser fan motor, and conditioned air blower motor. With the power rate of 3 cents per kwhr, the system costs 9.6 cents per hour to operate. You had assumed 800 to 900 full load operating hours per season for your locality, making the yearly cost approximately what you had quoted the builder.

In checking an air conditioning reference book, you noted that the "usual" air conditioning season



### What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons, according to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. ASHRAE defines air conditioning as:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

## Contribute to High Power Bills?

runs from May 1st to September 30th. This is 153 days or approximately 3600 hrs. Your assumptions for operating hours were taken from a table in the book for a large city near your location.

In checking back in this book you find a foot note to the table cautioning the reader not to put too much stock in the figures since hours of operation are subject to considerable variation not only from year to year, due to weather variations, but also due to individual habits of operation developed by different families.

### Routine Check Scheduled

The last statement rings a bell. "Could it be," you ask yourself, "that these people are operating their system so differently from average that it will run almost twice the number of hours?" Dismissing this thought as highly improbable, you ask your service manager to schedule a routine mechanical check of the system as soon as possible. The mechanic is to call you direct from the job and report his findings.

Before the phone rings the next morning you continue the check of your calculations for the job. No mistake in arithmetic turns up, but you admit to yourself the possibility that some of your design figures were based upon assumptions that could stand field checking. For instance, you visualized that the owner would set his thermostat for 80 F at the beginning of the cooling season and forget it, allowing the condensing unit to cycle as required at any time to hold this temperature.

What if he didn't follow this pattern of operation? Since you made no direct outside air connection to the system, your load calculation includes only slightly over one change per hour for infiltration. Could there be more than this? The installation includes a long supply duct in the loft above the living space. You had put one inch of good insulation with a vapor barrier on this and assumed this would cut the duct heat gain to a negligible amount, so you made no allowance for it in your load calculation.

Was this assumption correct? In

going over your load estimate form, you notice a blank line opposite the item "conditioner blower motor." "Maybe I should have filled in this value," you say to yourself.

As you close the file, you are still reasoning with yourself. "Sure, so I did leave out a couple of minor items in the load estimate. How much difference could they make? Besides, if I am wrong in not considering these, how come the owner isn't complaining about high inside temperatures? Here it is the end of July, and we've had some pretty hot weather that would show up an undersized system."

### Personal Visit Pays Off

Your train of thought is interrupted abruptly by the phone ringing. It's your mechanic. "Nothing mechanically wrong, boss. I've checked compressor pressures, sight glass, and blower operation so far. Want me to look further?" "No, go ahead with your regular schedule. Tell the housewife I'm coming over. There are a few things I want to look at myself," you say.



## Solving Problems continued . . .

You hop into your car and twenty minutes later are pulling up in front of the problem house. You notice three children playing on the porch. The door opens and a fourth one joins them. As you approach you notice that number four left the door open. The door bell rings, but no one answers. "Mom's in the backyard," says an obliging voice from the porch.

Around back you introduce yourself to the lady of the house. She proceeds to unburden herself of her concern about power bills. Finally, you get a chance to ask some questions. "Do the children run in and out of the house much?" "Constantly," is the reply. "And they're having trouble learning to close the door with this air conditioning. We never had it before." As you follow her into the house, she explains the open back door by saying she was only out back for a "minute."

Inside, you sense that the house is quite a bit cooler than it was outside. It gives you a reassuring feeling to know that the equipment is doing a good job of cooling. "Do you always keep it this cool?" you ask as you note a temperature of 75 F on the thermometer. The reply is affirmative and is followed by the question, "Shouldn't we?" You avoid an answer to that question by asking the lady whether or not the builder had explained anything about the air conditioning

system when she bought the house. "Sure, he showed us how to turn it on and off and explained about the filter. We're supposed to look at it once in a while to see if its dirty. Oh, and he gave us a card with your name on it just in case we need a service man. Is there anything else we should know?" You nod with a smile and say, "I think there are a few more things I can tell you that might be helpful."

### Inspecting the System

After receiving permission to inspect the system, you proceed through a door in the kitchen to an extended garage attached to the house. The back end of the garage serves as the utility room in which the cooling equipment is located. The garage door is wide open, and the housewife explains that it has been her custom to leave it open in warm weather so that her husband can pull right in when he comes home.

In examining the conditioning unit you make a significant discovery. The filter access door is missing. Normally this door is held in place by spring clips. Its purpose is not only to hide the filter but, much more important, to prevent warm, humid outside air from being sucked into the system on the downstream side of the filter. You can feel quite a flow of air passing from the garage in through this opening.

Finding the housewife again, you inquire as to the whereabouts of the missing cover. "Oh that," she exclaims, "My husband re-

moved it about a month ago to check the filter. When he tried to put it back on, one of the clips broke off. The cover is on his workbench. Guess he hasn't had time to fix it yet." You explain the importance of having and keeping the cover in place and then ask to be shown the trap door to the loft.

As you pull yourself up into the loft, you see immediately the supply air main running the full length of the house from the utility room at one end. With the sun falling on the roof, the loft is hot. Your pocket thermometer shows the temperature to be 123 F. You note a small louver in each end and you also note that a 3 in. blanket of insulation is in place between the floor joists. Before leaving, you place your hand on the outside of the insulated supply main and note that it feels cool to the touch, though there is no evidence of any condensation on the outside of the vapor barrier.

### Findings Aid Re-evaluation

Your survey is completed when you examine the return air duct. It is in the crawl space and is connected to each room through grilles just above the baseboard. No insulation was used since the space through which the duct runs is unvented and stays reasonably cool. You thank the housewife and tell her that as soon as you make a few calculations, based upon what you have seen, you will call back and make some suggestions that will help to reduce her power bill.

Back at the office you start your

Room	Floor Area	Total Btuh	Solar Btuh	Conducted Btuh	Infiltration Btuh	Internal Latent Btuh	Latent Btuh
Living	317	4933	50	2375	675	600	1233
Bedroom No. 3	105	1066		575	225		266
Bedroom No. 2	142	2166	450	725	450		541
Bedroom No. 1	176	2500	500	810	565		625
Bath	67	666	25	325	150		166
Foyer	44	1133	325	340	185		283
Kitchen	83	2800	25	385	190	1500	700
Dining	127	3333	825	665	410	600	833
Hall	63	166		125			41
	1124	18763	2200	6325	2850	2700	4688

Load based upon 95 F outside, 80 F inside

House volume = 1124 sq ft x 8 ft ceiling = 8992 cu ft

Outside air calculations:

Btuh  $\div$  1.08 x td = cfm

2950  $\div$  1.08 x 15 = 175

cfm x 60  $\div$  cu vol. = air

changes/hr

175 x 60  $\div$  8992 = 1.17 air changes/hr

**1 RECAPITULATION** of original load estimate reveals each source of heat gain based upon normal living habits of an average family occupying the house. Variations from this estimate will help pinpoint excess sources of heat gain and causes for complaints

task. The first thing you do is jot down the figures in your original load estimate, arranging them as shown in Fig. 1. In arriving at these figures, you used a method that provides factors for filling in on a prearranged form.

Remembering the open doors and the missing air filter access cover, you look at your allowance for infiltration. The 2850 Btuh figure used would allow for about 1.17 air changes per hour. Suppose this were doubled? You start the tabulation shown in Fig. 2, and enter 2850 Btuh for the extra outside air.

You look at conducted heat gain next. You figured the load based upon 95 F outside, 80 F inside. If the inside temperature is to be 75 F inside, the conducted heat value increases by  $\frac{1}{3}$ , so you add  $\frac{1}{3}$  x 6325 or 2108 Btuh to your tabulation.

### Examine Duct Heat Gain

What about duct heat gain? It was omitted entirely from your original calculation. From your design sketch you estimate that there are about 125 sq ft of duct surface in the loft. The overall U value with 1 in. insulation is about 0.25. The temperature inside the duct is about 60 F; you measured the duct ambient as 123 F. From these figures you find the duct is con-

tributing about 1970 Btuh to the load, and you enter this figure in the tabulation.

Finally you include an allowance for the  $\frac{1}{3}$  hp conditioned air blower motor of 1415 Btuh. The four figures total 8343 Btuh, almost half of your original estimated total. A correction for latent heat (estimated as  $\frac{1}{3}$  of the total sensible heat) would bring the revised total up to 29,891 Btuh.

### Steps to Reduce Load

The revised load is larger than the nominal two ton cooling unit can handle under peak conditions. However, with a little cooperation and understanding on the part of the owner, you are confident you can bring it back in line with that which was estimated. Furthermore, reducing the load existing under peak conditions will also reduce it under off-peak conditions. The result will be less hours of operation per day and lower operating cost.

Your plan is as follows:

- 1) Point out to the owner the relationship of inside temperature to operating time and power consumption. Tell him that if operating cost is important, he should keep the inside temperature as high as is possible for comfort.
- 2) Show the owner what a large

	Btuh
1. Allowance for extra outside air	2850
2. Allowance for 75 F inside instead of 80 F	2108
3. Allowance for duct heat gain	1970
4. Allowance for conditioned air blower motor	1415
	8343

**2 LIVING HABITS** of the homeowner used in this example accounted for an additional heat gain of 50 percent over the original estimate, thus forming a basis for a high power cost complaint

amount of outside air, such as infiltrates through open doors or as that entering through the missing filter access opening, can mean in terms of power cost. Ask his cooperation in minimizing direct outside air cooling.

- 3) Ask the owner to install a small fan for ventilating the loft. This will bring the loft temperature down nearer the outside temperature and will reduce heat transmission into the supply air duct.
- 4) Ask the builder to explain more of the characteristics of the system to future prospects for his homes.



# How Does *Your* Company Compare?

## Classes of Business

To assist in establishing the identity of the types of businesses that will be reported in this series, these classifications were used:

1. Light gage sheet metal fabrication.
2. Light and heavy gage sheet fabrication and production fabrication of specialties.
3. Sheet metal fabrication and builtup roofing.
4. Sheet metal, warm air heating, and summer air conditioning.
5. Warm air heating and summer air conditioning.
6. Warm air heating, hot water heating, and summer air conditioning.
7. Heating and builtup roofing.
8. Heating and appliances.
9. Mechanical contracting.

... with the successful company whose operating costs and expenses are broken down here and on the next two pages?

THE BUSINESS operating statements of two similar heating and air conditioning dealer-contractor organizations were reviewed and analyzed in July American Artisan. The functions of each major segment of each business were compared to show how the operations varied, and to point out where certain areas could be studied to improve the operation.

Subscribers to American Artisan were invited to compare their operating ratios with those of the two companies supplying the information. Each month an additional operating costs and expense breakdown is scheduled to enable dealer-contractors to compare their operations against those of successful companies.

As the series progresses, representative businesses from nine different combinations and with annual sales volumes ranging from \$50,000 upward will be published. Companies cooperating with American Artisan in presenting this data are not identified because of the confidential nature of the information given.

The analysis and breakdown has been prepared by a Certified Public Accountant with clients in the heating, air conditioning, and sheet metal industry. Dealer-contractors with similar operations can pass the published information along to their own accountants for a review and comparison of their costs for different categories. Written reports of the accountants'



**Breakdown of operating costs and expenses shown in percent of each sales dollar**

	Production	Selling	Occupancy	Administrative	Totals
Payroll	25.89	1.58	0.22	2.75	30.44
Materials & supplies	49.45			0.23	49.68
Services	7.77	0.28	-0.03	0.88	8.90
Repairs	0.27				0.27
Taxes	0.91		0.30	0.34	1.55
Unclassified	2.72	0.26	0.21	0.70	3.89
Totals	87.01	2.12	0.70	4.90	94.73

comparisons are desirable for use as guides in correcting areas where costs are higher.

One comparison made in the July report showed how one operation earned 5.36 cent per sales dollar more, principally because it had a 5.06 cent per sales dollar lower labor cost. Investigation showed that field supervision was primarily responsible for this difference.

Good purchasing habits were also responsible for a 1.44 cent per sales dollar lower cost.

Scheduling of material delivery to the job site, prompt assignment of work, checking of completion time required for work assignments, etc., not only lowers production costs but also reduces costs in other categories such as workman's compensation payments.

Direct selling expenses are normally higher for larger companies because they must rely on salesmen who require additional office space and other facilities.

Housekeeping expenses are often higher with larger companies

because of the additional facilities required for a group of female employees. Higher expenses are also encountered where real estate values are higher.

Expenses and costs have been broken down under the headings of Production and Installation Costs, Selling Expenses, Occupancy Expenses, and Administration Expenses. The different types of costs that occur under these headings are listed to show how this company allocated the money spent during 1960.

In the Administrative group, executive salaries can be expected to be higher for larger companies because of the 52 percent corporation tax; clerical salaries are higher because of closer accounting control.

On the operating costs and expenses tabulation appearing on the next page, it will be noted that a minus cost of \$2627.16 is shown under Occupancy Expense for rent of premises. This figure is due to revenue from subletting portions of the building used.

## Turn page for Operating Costs and Expenses ▶

### Business Analysis Forms Available

IF YOU would like your business considered for this type of analysis, fill in and mail this coupon.

Editor  
American Artisan  
6 N. Michigan Ave.  
Chicago 2, Ill.

Send me the forms needed to submit my Operating and Financial Statements for consideration in the business analysis articles. I understand that neither my name nor that of my company will be revealed in any manner if the data submitted is used.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

### Background of Company

Annual Volume \$1,471,686  
Population of Area Served 800,000  
Has a Union Labor Contract  
Air conditioning and heating 75%  
General Sheet metal 5%  
Plumbing (subcontracted out) 20%

# **Annual Volume \$1,471,686.13**

## **Operating Costs and Expenses**

	Production and Installation	Selling Expenses	Occupancy Expenses	Adminis- trative Expenses	Total Costs and Expenses
<b>Payroll</b>					
Direct Labor	\$ 321,982.76			\$ 7,516.63	\$ 329,499.39
Indirect Labor	31,216.14	\$ 23,202.30	\$ 3,279.43	20,009.56	77,707.43
Supervision	27,735.99			13,000.00	40,735.99
<b>Total Payroll</b>	<b>380,934.89</b>	<b>23,202.30</b>	<b>3,279.43</b>	<b>40,526.19</b>	<b>447,942.81</b>
<b>Materials and Supplies</b>					
Direct Materials	704,643.31				704,643.31
Short Life Equipment	9,953.16				9,953.16
Autos and Trucks	12,163.47				12,163.47
Advertising	.00				.00
Office Supplies and Postage	1,077.02			3,334.38	4,411.40
<b>Total Materials and Supplies</b>	<b>727,836.96</b>			<b>3,334.38</b>	<b>731,171.34</b>
<b>Services Purchased</b>					
Sub-contracts	106,252.83				106,252.83
Rent of Premises			-2,627.16		-2,627.16
Utilities			2,152.05		2,152.05
Advertising		4,078.48			4,078.48
Legal and Accounting				2,022.08	2,022.08
Telephone	8,047.07			3,830.24	3,830.24
Insurance				3,211.91	11,258.98
Interest				3,968.52	3,968.52
<b>Total Services Purchased</b>	<b>114,299.90</b>	<b>4,078.48</b>	<b>- 475.11</b>	<b>13,032.75</b>	<b>130,936.02</b>
<b>Repairs</b>	<b>3,953.30</b>				<b>3,953.30</b>
<b>Taxes</b>					
Property Taxes			4,384.61		4,384.61
Sales and Activities Taxes				2,083.04	2,083.04
Payroll Taxes	12,996.30			2,492.26	15,488.56
Licenses and Fees	477.51			422.08	899.59
<b>Total Taxes</b>	<b>13,473.81</b>		<b>4,384.61</b>	<b>4,997.38</b>	<b>22,855.80</b>
<b>Unclassified</b>					
Depreciation	10,325.20		3,030.67	937.81	14,293.68
Employees Welfare	20,094.71			1,741.60	21,836.31
Travel and Entertainment		1,641.01			1,641.01
Bad Debts				5,974.93	5,974.93
Miscellaneous	9,591.40	2,205.28	40.00	1,677.87	13,514.55
<b>Total Unclassified</b>	<b>40,011.31</b>	<b>3,846.29</b>	<b>3,070.67</b>	<b>10,332.21</b>	<b>57,260.48</b>
<b>Total Costs and Expenses</b>	<b>\$1,280,510.17</b>	<b>\$ 31,127.07</b>	<b>\$ 10,259.60</b>	<b>\$ 72,222.91</b>	<b>\$1,394,119.75</b>

# AMERICAN ARTISAN

## Sheet Metal Section

Ventilation

Dust Removal

Architectural

Specialties



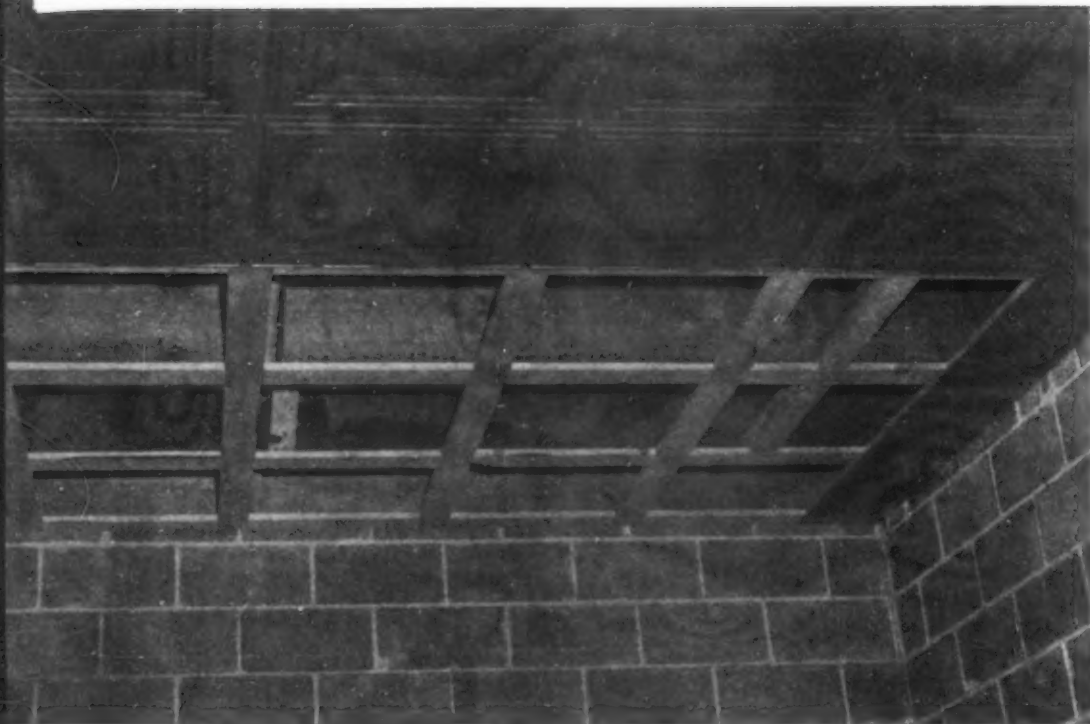
Reputation for fabricating specialty items lead to rescue truck order . . . . . p 68

Sells Metal Ceilings to Harmonize with Interior Decor . . . . . Page 64

Where Custom Made Products are a Specialty . . . . . Page 68

How to Influence Home Owners to Buy Gutters and Downspouts . Page 72

The Day of Robot Men is Here . . . . . Page 74



PARTIALLY COMPLETED ceiling shows alignment of metal panels with wood furring strip pattern in place

## Sells Metal Ceilings to

**A panel style that matched individual service was selected for each of 12 stores in a new shopping center**

ARCHITECTS STRIVING to maintain architectural decor both inside and outside of buildings they design often overlook the use of metal ceilings and walls. This was not the case at the Junction Shopping Center, Peoria, Ill., because sheet metal contractors Jay and Ellis Harms, Standard Sheet Metal Co., pointed out how various patterns of metal panels offered each store tenant the type of ornamental background needed to maintain the exterior and interior design that best harmonized with their product line.

The 12 store shopping center includes one each of the basic retail outlets to meet the needs of the public living in that marketing area.

### Figuring Ceiling Area

Jay and Ellis Harms offered the architect 24 panel styles from which to make a choice. Once the selection had been made, the quantity of each panel needed for the particular store was determined at a conference between the brothers.



PANEL selection to match the decor of a retail store is discussed by sheet metal contractors Jay E. Harms and Ellis Harms



## Harmonize with Interior Decor

In determining the number of panels needed, the floor plan of the room is studied for offsets caused by chimneys, store rooms, and display windows and skylights. These dimensions are subtracted from the total ceiling area, also the dimensions of girders, beams, posts, etc. that would occupy additional space that would not need to be covered by metal ceiling panels. In addition to the ceiling area that will not be covered by the panels, allowance is made for the cornice and a trim strip that will fill the space between the last panel and the wall.

The second step in estimating the quantity of material needed is to determine the length of cornice that will be required.

Girders and beams are usually covered with a beaded type molded filler to harmonize with the trim strip used at the termination of

the ceiling with the wall. A beaded filler strip is recommended because it doesn't show distortion as easily as most panel designs. It has also been found that the beaded filler strip can be worked in a brake without showing fabricating marks.

### Positioning Furring Strips

Metal panels are attached to 1 x 3 in. wood furring strips fastened to ceiling beams. The placement of these furring strips requires care both at the starting point and in the ensuing placement of adjoining strips.

In locating the starting point of the first row of furring strips, each area is treated as a separate room and the number of panels must be known. This means that a room with a girder down the center would have two areas, each

being treated as a separate room. The space between the girders and the wall (the width) would be divided by 24 in. to determine the number of complete panels that would fit in the space. This is multiplied by the figure 2 to obtain the number of panels that will be required from wall to wall (or wall to girder).

The length of the room is next estimated and from this figure, the number of panels needed for one run is determined. Total number of panels required for the job is obtained by multiplying the number needed for the width of the room (or area) times the number needed for the length.

### Locating Center Points

When the number of panels required has been determined and ordered, the exact center of the



**ESTIMATING CONFERENCE** is based on ceiling area less the space occupied by wall offsets, skylights, girders and beams

width of the room is located at one end of the ceiling. If there is to be an even number of panels, this will be the location of the first wooden furring strip. If there is an uneven number of panels, this will serve as the point 12 in. to one side of which will be the first furring strip run.

Upon determination of the location of the first furring strip run, the point located is marked at the opposite end of the room and a guide string fastened to each of these center points.

#### **Install Cross Strips Next**

Furring strips are nailed to the ceiling on 24 in. center and along the lines indicated by the guide strings. After this operation has been completed, the cross furring strips are installed. These are installed in the same manner, beginning at the center of the room and determining the center panel location, and then working to the

right and left on straight lines across the room. When completed, the furring strips form a 24 x 24 in. pattern.

Panels are attached to the furring strips with 16 ga, 1 in. wire nails using flat heads, barbed shanks, and needle points. About  $\frac{3}{8}$  of a pound of these nails are required for each 100 sq ft of ceiling or wall.

#### **Lapping Eliminates Shadows**

Mechanics must consider the sources of light and shadow effects to determine the direction in which to lap the panels. This is best determined by a trial method to find which way the light tends to create the least shadow. Carefully installed panels will reveal no shadow at the lap seam. Much of the possibility of shadow can be eliminated by fitting the lapping beads tightly against one another and nailing on 6 in. centers.

Molded fillers are also lapped

continued . . .

## **Careful Estimating**

in the same direction as the panels to prevent the possibility of shadows occurring at these points.

#### **Installing Cornices**

Cornices are installed by striking a chalk line equal to the projection of the cornice along the stippled or embossed part of the filler border. Also a chalk line equal to its depth is struck along the side wall to keep the bottom of the panels in alignment. A wooden foot strip is used for fastening the cornice in place, using the chalk marks as guide lines for its installation. Wooden brackets fastened between the foot strips add support to the 4 ft cornice pieces.

#### **Applying Cornice Miters**

Both inside and outside cornice miters are available and are applied before the straight cornice sections are installed. Wooden brackets are recommended. Cornice pieces are nailed at 6 in. intervals to the strips. Upon completion of the panel and cornice installation, an inspection of all seams and laps should be made. Any laps that do not appear to fit tightly can be closed with a small blunt caulking tool and a mallet.

Round, concave, or convex

# Precedes Order for Metal Ceiling Panels

corners can be treated by cutting the cornice into small, short lengths at the point the curve takes place. Wooden brackets placed behind these will fill out the space and provide a nailing background for the cut portions.

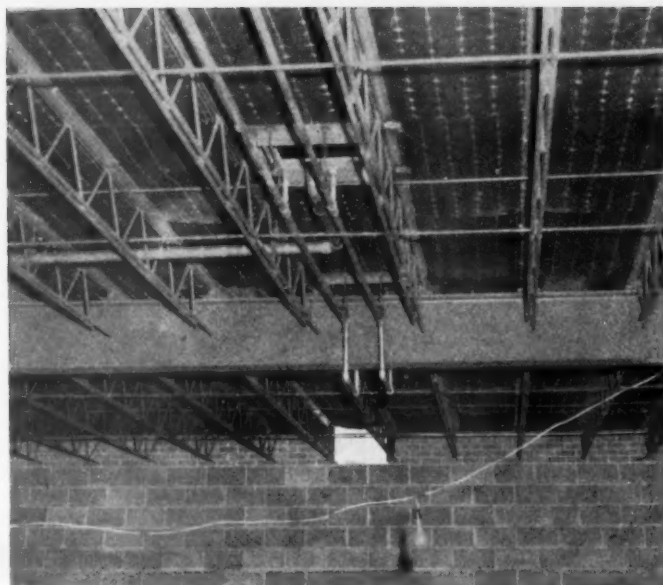
## Beams, Girders Covered

Steel beams and girders are covered by first building a wooden frame around the beam. The metal casing is next bent at the proper angle and attached in the same manner as the ceiling panels, keeping in mind that lap seams should be on the side away from the strongest light source if this is at all possible. It is desirable to complete this work before putting on the nearest row of ceiling panels.

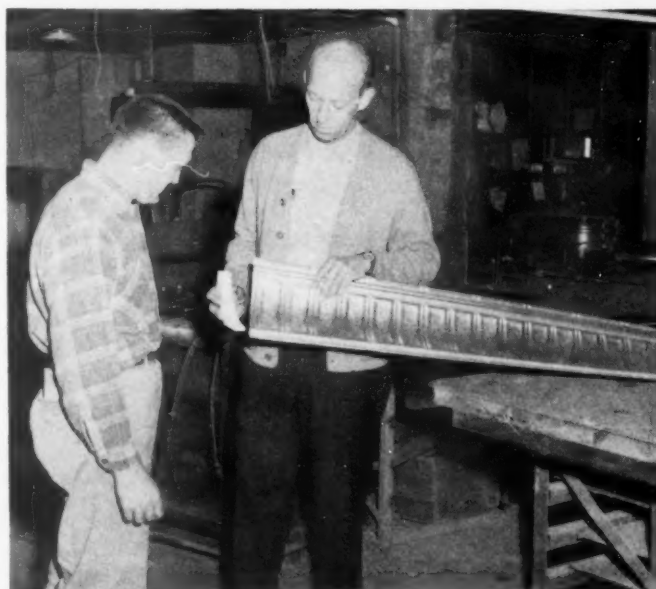
## Prime Coated for Painting

Metal ceilings can be painted any color desired by the decorator. They are supplied from the factory with a prime coat suitable for any type of oil base paint.

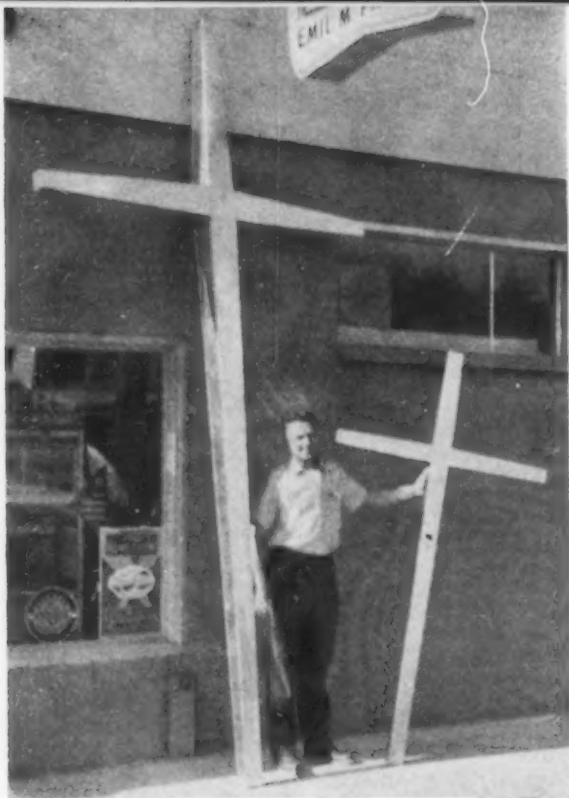
A light coat of paint is preferable to a heavy coat and it's been found that a light shade is better than a full color. Calcimine and cold water paints have been found undesirable for use with metal ceilings, and should be avoided.



ROOMS WITH GIRDERS and beams must be estimated as separate areas, and the girder covered with a wooden frame to provide a base for the attachment of beaded metal fillers



METHOD OF FASTENING metal cornice to wooden bracket is discussed by shop foreman Robert Calloway (left) and contractor Jay E. Harms



ALUMINUM companion crosses for installation at a local church were designed for architectural decoration for both day and night use. Small cross includes a fluorescent tube for reflecting its outline after dark

## Where Custom Made

**A rough sketch or photograph is sufficient information  
for this sheet metal contractor and his staff  
to build those special items customers want**

ORDERS FOR CUSTOM made non-standard sheet metal products are frequent at the Emil M. Pahor Co., Las Vegas, Nev. Requests often received during a single week will range from small coin drop trays to special truck bodies and will require the use of sheet copper, stainless steel, copper, aluminum, galvanized and black iron.

### Develop Customer Sketches

Being the oldest sheet metal contractor in southern Nevada, Mr. Pahor's business has grown with the area. Many of his original customers come to him for

solution of their sheet metal needs. Often the customer will bring in a rough sketch or a photograph of some item they want. Interpretation of the customer's need into a satisfactory and attractive sheet metal product is often the result of the close coordination between management, the sales department, and the shop.

### Trademark is Service Symbol

Attractiveness and practicability are the two watchwords of the company staff. To reflect these objectives, the company uses as a trademark a silhouette of a metal man in the process of per-

forming the work of his trade.

To locate new customers coming to southern Nevada and to maintain contact with established customers, the Pahor company annually participates in the home show, displaying a variety of specialty products manufactured for the home and industry. It's Mr. Pahor's opinion that even though this may be primarily a home show, business people visiting the exhibits will recognize some sheet metal product that they may have a need for and which can be obtained through the Pahor company.

The use of the metal man as a trademark appears on the com-





RESCUE TRUCK BODY fabricated by Emil M. Pahor is examined by fire chief and driver at time of acceptance

## ***Products Are A Specialty***

pany's letterhead, proposals and contracts and alongside of the exterior sign outside of the building. In each use of the trademark, the metal man is shown in a position of performing a service. For instance, at the home show display, two of these metal men (each 7 ft high) held up one end of a duct connected to a mockup of an air conditioning system. Behind the metal men, in the interior of the booth, various pieces of equipment and custom made products were on display.

### **Rescue Truck Fabricated**

Among the recent orders for special sheet metal work was an order for a rescue truck body for the Las Vegas fire department. The only clue available for designing the type of a truck body



CUSTOMER ORDERS often are received in the form of rough sketches of the item they need. Contractor Emil M. Pahor (left) reviews such a sketch with sales manager Harry Harvey

continued . . .

## Uses A Company Symbol To Identify Service

required was a photograph of the rescue truck used in the television program "Rescue 8."

### Seven Compartments Needed

In fabricating this truck body, seven compartments were needed along each side of the truck, with access from the outside of the truck. Each compartment was designed for some specific piece of equipment. The interior of the truck included a litter compartment from which the litter could be quickly removed, yet not interfere with respiration equipment installed on a shelf located above the litter compartment.

The truck body was fabricated of 2600 lb of 14 ga automotive

grade black sheet iron, fastened to angle iron frames forming the base for the litter compartment. In order to keep weight of the truck body down, angle iron was used only at the two points where the truck body rested on the truck chassis. The remainder of the sheet metal work was supported by the use of crushed hems and 90 deg folds.

This same technique not only is used to provide rigidity to the truck body compartments, but also was used in smoothing off the open edges to each compartment and to form bases for the attachment of latches and handles.

### One Piece Roof Cap

A one-piece roof cap provided additional support between the outer edges of compartments on each side of the body and the inside walls located at each side of the litter compartment. The roof cap was also fabricated of 14 ga sheet metal. Piano hinges were 10 ga industrial type, running the entire length of the compartment doors.

### Locating the Latch

One of the problems faced by the mechanic who fitted the door latches was selecting a location for the latch that was both convenient to reach, yet would not allow them to pop open when a

sudden jar occurred, such as hitting a deep hole in the street while moving at a high speed.

### Aluminum Used for Crosses

Other recent orders included one for companion crosses from a Methodist church; one 12 ft 6 in. x 6 ft 6 in., to be placed at the front peak of the church, and a smaller cross 7 ft 6 in. x 3 ft 8 in. to be placed at one side of the church entrance.

The difference between the two crosses was that the larger cross, to be located at the roof peak, was to be supported solely from the base, which was inserted over a frame firmly attached to the structure during the original construction. The smaller cross was to be attached to the masonry walls with 90 deg supports that were first attached to the masonry.

### Back Side Left Open

One other variation in the construction of the two similar crosses was that the smaller cross was fabricated with the back left open for the insertion of fluorescent tubes that, when lit, would give the impression of a lighted cross.

Both crosses were fabricated of aluminum, 0.025 being used for the larger and 0.040 being used for the smaller. In fastening the smaller cross to the supports that had been set into the masonry,



COIN DROP trays of stainless steel are examined for any sharp edges by Dan Hartwell, shop foreman, and Robert Pahor before being delivered to the job site



COMPANY trademark — metal man — is prominently displayed in company sign, on letterheads, proposals, contracts, business cards, display room and where other opportunities exist

HOME show booth displays samples of the company's varied products and its trademark — the metal man



blind aluminum rivets were used because of their convenience in attaching the smaller cross to its supports, plus the fact that attachments were barely noticeable.

#### **Fabricate Coin Drop Trays**

Another product for which orders are often received by the Pahor company are coin drop trays used with slot machines

found in most of the commercial establishments in the area.

These coin drop trays are fabricated from 0.025 chrome and stainless steel, and are designed to create noise when coins are dropped into the tray. To achieve this, the trays, which are  $15\frac{1}{2}$  x  $6\frac{1}{2}$  x  $5\frac{1}{2}$  in. deep, a slanting pan is attached to each end of the tray so that when the machine dumps, the coins will hit on the slanted

shelf and because of the space beneath the shelf the noise will be amplified and continued as the coins slide from the shelf into the pan where they are retrieved. Pans are so designed and constructed that no sharp edges are left exposed.

Wherever two pieces of metal come in contact with each other the joint has been soldered with 50-50 solder.

# How to Influence Home Owners To Buy Gutters and Downspouts

. . . working display, handouts, and booth attendants  
point out property damage that  
occurs when rain carrying equipment is not used

**By Dale C. Lynch,**  
Executive Secretary,  
Air Conditioning & Heating-Roofing &  
Sheet Metal Association of Minneapolis

DOES THE AVERAGE new home buyer want gutters and downspouts on the house he buys? According to a 275 home survey conducted by members of Air Conditioning & Heating-Roofing & Sheet Metal Association of Minneapolis, 71 percent of the home buyers contacted not only said "Yes," but also indicated that they believed gutters were needed immediately. These people also said they wished the builder had included gutters and downspouts on the houses they purchased, and that costs could have been made a part of their monthly mortgage payments.

## Survey Uncovers Trend

The survey was conducted because the association's members felt that their volumes and profits did not increase with the continued increase in new house starts. There was evidence that many builders believed they could omit gutters and downspouts from the houses they built and, by so doing, cut their construction costs. Association members thought this trend could be reversed through

a program of education that would influence new home buyers to demand gutters and downspouts and would also induce present home owners to add gutters and downspouts to homes that did not have these essential components.

## Property Damage Indicated

To establish the need for gutters and downspouts, members of the association, late in 1960 and early in 1961, sent out survey teams (no sales calls and no callbacks were included) to question recent purchasers of new homes. A standard questionnaire was used. Most homeowners said they had not thought to ask about gutters and downspouts when they purchased the home. Some who did were told they were not needed.

Of the 275 recent home buyers interviewed, about 38 percent had suffered damage to their property because the houses had no gutters or downspouts and the owners were not in a position to add them, even though damage to their property would continue.

It is the feeling of our associa-

tion members that there is a lack of responsibility shown by home builders who ignore the obvious need of a prospective home buyer, and that the Federal Housing Administration and the Veterans Administration have also been remiss in failing to provide protection for the home buyer utilizing their mortgage facilities. "Let the buyer beware" cannot be a justifiable stand in regard to this matter of buying a home, especially under FHA or VA mortgage protection. Minimum standards in this regard should be raised. We intend to make a presentation to local VA and FHA people soon.

## Education Program Begun

The "education" part of our program at the present time revolves around a booth display. Hidden above the two miniature houses used in the display are pipes designed to create artificial rain. The water is allowed to run where it will. We have installed gutters and downspouts on one home. On the other we have not. The result is a distasteful, dirty





HOMEOWNERS LEARN about the value of gutters and downspouts through a mechanically operated display at Minneapolis Builders' Show. Brochures are handed to prospects by association members Robert Graving (left) and Robert Johnson (second from right)

mess on the side of the non-guttered house and a spick and span, flowers-are-blooming appearance on the guttered and downspouted house.

Signs under each demonstration state: "Drain the rain away or stains are there to stay." On a slanted shelf in front of the display are enlarged photographs of houses; the pictures were taken at random around the Twin Cities of Minneapolis and St. Paul. The photographs are unretouched and say better than words what we are talking about. Mud against the house, stained and broken steps and stoops, broken and rotting plants and flowers are evident. We have also included several photographs of homes with

properly installed gutters and downspouts.

As an association promotional activity we have used the booth at home shows in both Minneapolis and St. Paul. The booth is manned by employees of our association members. These employees are not identified as belonging to an individual firm. If a "hot" prospect turns up, the attendant is permitted to give him a business card. So far this technique has worked out very well, and a number of leads are secured in this way. At first we teamed people from different firms, but we found that this was not necessary. We just scheduled the time evenly and let it go at that.

The cooperative spirit shown by the firms who compete in this market has been most gratifying. The theory is that each firm will get its share of "walk-in" business; the over-all aim of educating future home buyers is the most important aspect. The firms themselves are well satisfied.

#### Booth to be on Display

We expect to keep the booth moving between home shows by securing space in bank lobbies, savings and loan associations, and other places where money is available for home mortgages and home improvement loans. Again, on a "Sheet Metal Contractors Association" basis. We won't man

the booth in these cases — just let it sit there for people to see.

We'll also make the booth available to individual suppliers and contractors who belong to the association. They can use it in display rooms or in other places of value to them. The association sign comes down in these cases, and a sign with their own firm name can go up. There is a rental charge for this type of use.

We have prepared a two color brochure, 14 x 10 in. when opened, as a handout piece for

prospects. Our theme in the brochure is, "A house is not complete without adequate rain carrying equipment." To carry this theme to prospects, we've used several photographs to illustrate our points.

The brochure lists:

Galvanized gutters and downspouts installed during construction eliminate:

Wet walls, water in basement.  
Damaged stucco, brick or siding.

Damage to shrubs and flowers.

Dripping on steps.  
Galvanized gutters and downspouts provide:

Neat architectural eave lines.  
Year 'round protection from weather.

Economy — best quality at minimum cost.

Drainage to most desirable locations.

Another heading in the brochure states: "For your protection, it is wise to consult a bonded and insured contractor who guarantees the performance of his work."

## The Day of **ROBOT MEN** is **HERE**

THE DAY OF the totally mechanical man is drawing nearer each year, and it appears that he will be the product of the sheet metal shop. The first working model was recently completed in the shop of Standard Sheet Metal Co., Peoria. Shop foreman Robert Calloway built the first full-scale model after first working out the patterns for a 1/6 scale model. The experimental model was fabricated of heavy weight paper to permit alterations and trimming. Guidance and advice were freely given by Standard Sheet Metal Co.'s management team of Jay and Ellis Harms.

The completed mechanical man — known as X-611 — is 6 ft tall and fabricated of 24 and 26 ga galvanized sheet metal. All joints were riveted. All metal parts are self-supporting, using 90 and 45 deg angles formed in the brake. The total weight of the mechanical

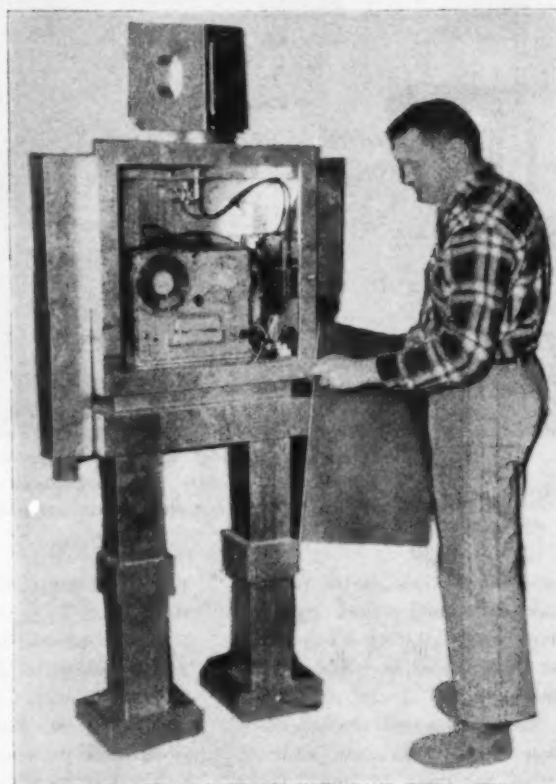
man is said to be about 70 lb.

The metal man was fabricated from a 10 by 15 in. sketch brought in by the customer who plans to sell X-611 to banks, shopping centers, and other places where it will be used to attract attention of children and adults alike.

The mechanical man has been designed to move his head slowly from side to side and to raise and lower his arms. This movement is

achieved by motors and linkage located inside the metal body.

Also included in the body is a tape recorder which will carry the advertising message assigned for the specific application. A panel located in the back provides easy access to periodic maintenance of the tape recorder and alteration of its message, also for replacement of varied colored light bulbs designed to attract attention.



# A MACHINE TO

# FABRICATE

# A COMPLETE DUCT

# JOB?

*There may be such a machine some day,  
but even then it will be too costly  
for the average shop to consider.*

One thing every shop should consider is the use of modern techniques  
to turn out better jobs faster and at lower cost.

We call it . . .

## DURO DYNAMATION

If you make Elbow Cheeks . . .

A DURO-DYNE CHEEKMASTER should make them for you.

If you Insulate Ducts . . .

A DURO-DYNE PINSPOTTER will make your job simple.

If you Fasten Sheet Metal . . .

A DURO-DYNE SPOT WELDER will pay for itself.

There are also Drill Screws . . . Punches . . . File Handles and dozens of other  
Duro-Dyne products which will help your shop turn out ductwork as if you owned  
"... A MACHINE TO FABRICATE A COMPLETE DUCT JOB."

**Special "GOLDEN OPPORTUNITY" Offer in effect During August and September . . . ACT NOW!**

Be sure to stop in to see DURO-DYNAMATION in action at your DURO-DYNE Distributor's showroom, or call him for a "GOLDEN DEMONSTRATION" right in your own shop.

# DURO DYNE

## CORPORATION

Farmingdale, New York

IN CANADA: Duro-Dyne of Canada Ltd. / 375 Norman St., St. Pierre, P.Q.  
EXPORT: Duro-Dyne Div. States Trading Co. / 401 Broadway, New York, N.Y.

Cable: TRADESCO

### PINSPOTTERS

Pull the trigger and  
weld a pin securely to  
your ductwork. Entire  
set-up portable . . .  
proven durability. Can  
pay for itself on your  
first job.

Costs . . . Only \$275  
Complete.

See A "Golden  
Demonstration" Now.

### CHEEKMASTER

ELIMINATES LAYOUT . . .  
patterns and hand cut-  
ting. Two quick settings  
and you are set to turn  
out cheeks with built in  
allowances for flanges  
and connectors. Cuts  
circles also.

Costs . . . Only \$144  
Complete.

See A "Golden  
Demonstration" Now.

### PORTABLE SPOT WELDERS

Convert to stationary  
units in seconds. Simple  
to operate in the shop  
or on the job. Proven  
dependability assures  
good welds at tremen-  
dous labor savings. Now  
available with built in  
Timers.

Costs as little as \$118

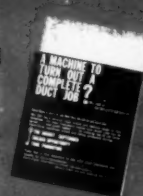
See A "Golden  
Demonstration" Now.

## WRITE NOW . . .

For a New Booklet on

"HOW

DURO-DYNAMATION  
CAN WORK FOR YOU"



# How to make your money grow up with your family



**A little at a time makes a lot**—when you stick to it. Millions of Americans save automatically by buying U.S. Savings Bonds through the Payroll Savings Plan. Just sign up once, and you'll never worry about saving again.

The only bills that don't grow right along with your kids are dollar bills. But you make your dollars grow too—by investing them in U.S. Savings Bonds. Say you start to put \$6.25 a week into U.S. Savings Bonds when your daughter is three years old. By the time she's in high school—and wants shoes and dresses and the beauty shop for herself instead of for her doll—you'll have close to \$3,900 to help you meet these "growing-up expenses." And over \$600 will be earned interest.



Ever see this picture? Probably not very often. It's of President Theodore Roosevelt as he appears on the largest Series E Bond the public may purchase—the \$10,000 U.S. Savings Bond. Most Bond buyers collect Thomas Jefferson's picture. He's on the \$50 Bond. Cost: just \$37.50.

## Why U.S. Savings Bonds Make Good Saving Sense

- You invest without risk under a U.S. Government guarantee • You now earn 3¾% interest to maturity • You can save automatically on the Payroll Savings Plan • You can buy Bonds at any bank • Your Bonds are protected against loss, fire, even theft • You save more than money—you buy shares in a stronger America.



**They'll need more than money.** They'll need a peaceful world to grow up in. U.S. Savings Bonds are shares in a stronger America. Buying them helps your country assure freedom's security.

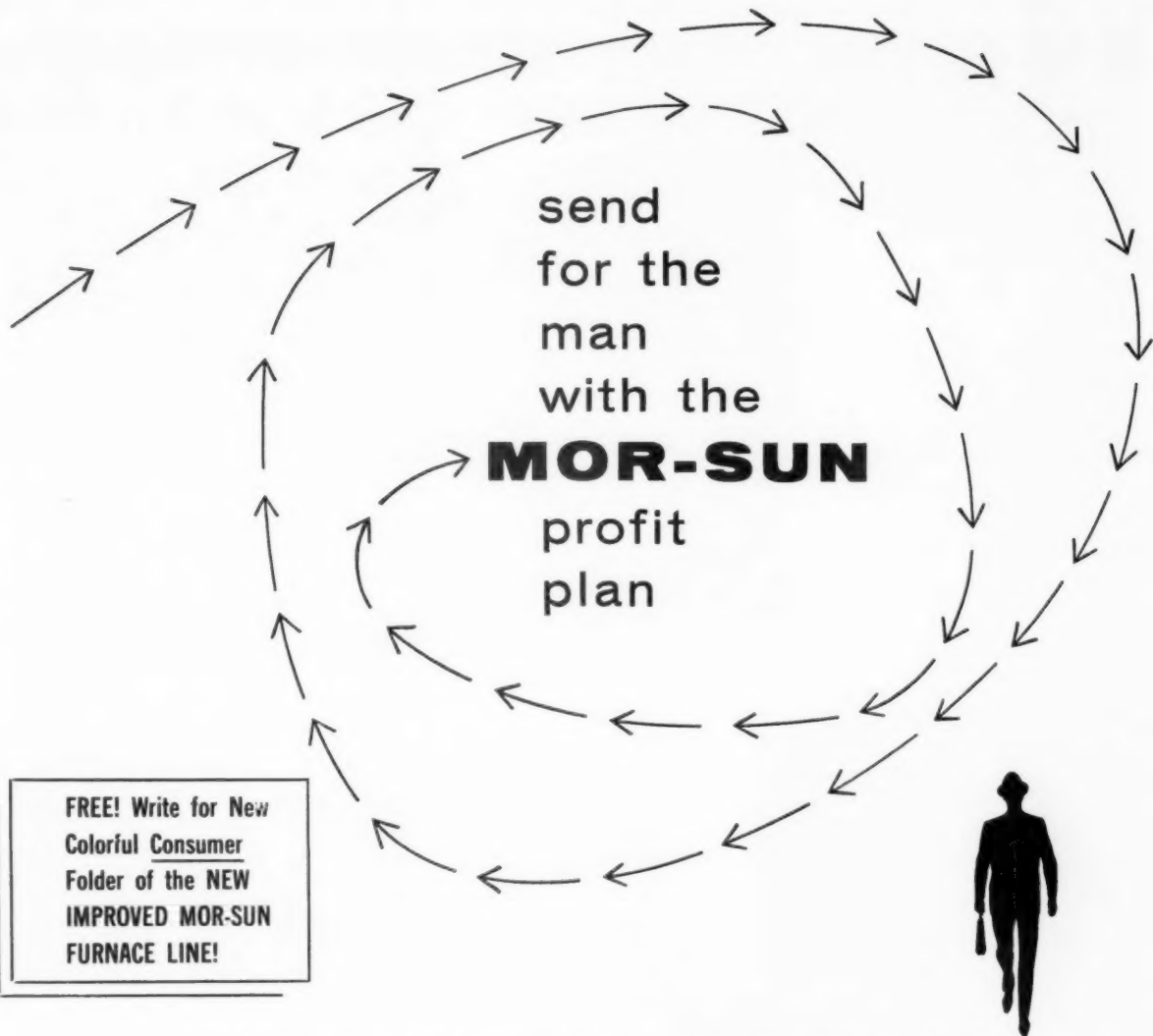


**You save more than money with U.S. Savings Bonds**

This advertising is donated by The Advertising Council and this magazine.







**FREE! Write for New  
Colorful Consumer  
Folder of the NEW  
IMPROVED MOR-SUN  
FURNACE LINE!**

1961 is different. You need a program this year — a complete plan for a profitable operation. MOR-SUN has such a plan for you . . . a complete plan that includes a quality product line, a competitive range of prices, a localized promotional and merchandising program and a stable profit policy.

Send for MOR-SUN'S Sales Representative . . . The man with the MOR-SUN PROFIT PLAN.

Make 1961 profitable for you.

- NEW ! 10% Off Prices**
- NEW !  $\frac{2}{3}$  -  $\frac{1}{3}$  Cooperative Advertising**
- NEW ! 100% Telephone Directory Advertising**
- NEW ! MOR-SUN Furnace Product Improvements**
- NEW ! Sales Aids**



## **MOR-SUN** furnace division

Morrison Steel Products, Inc. • Founded 1912 • Buffalo 7, N. Y.



**Manufacturers of Heating and Air Conditioning Equipment, Residential and Commercial Steel Sectional Garage Roly-Doors, Roly-Houses, Service, Utility and Van Truck Bodies, Contract Stamping**



**U.S. Presents the SUPERLATIVE — The No. 153 LINE (Single Valve) — PERFECTLY TIE-BARRED — A SILENT MARVEL — COMPETITIVE, LOW COST — IDEAL for HOME or PROJECT**

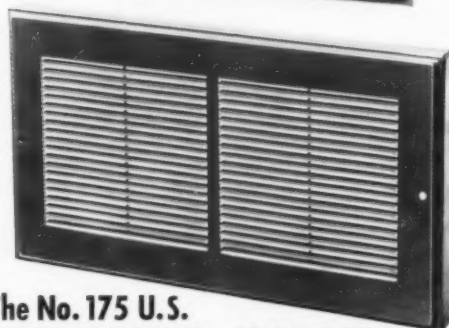
Grille-Bar Spacing  $\frac{1}{2}$ ". 22° Deflection obstructs vision **MAXIMUM FREE AREA** due to correct New Modern Tooling. You can enjoy the **DIGNITY** and **CAPACIOUS EFFICIENCY** with the Utmost in Economy. **DON'T BE FOOLED** by **CHEAP, INFERIOR IMITATIONS**. GET **U.S.** — ENJOY THE BEST.



**The No. 153 A-C REGISTER with TIE-BARS**



**TIE-BARS ELIMINATE "HUMMING" "STRUMMING" and BAD FEATURES found in other lines. The TIE-BAR is a U.S. ORIGINAL ACHIEVEMENT**



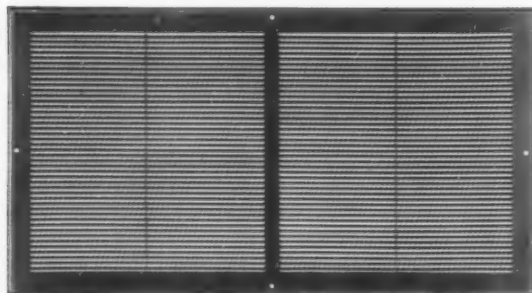
**The No. 165 U.S.**

**A-C BASE REGISTER COMPLETE WITH TIE-BAR CONSTRUCTION**

**The No. 175 U.S.**

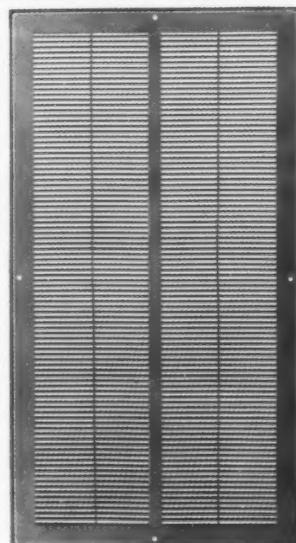
**A-C BASE INTAKE with TIE-BAR**

**THE NEW NO. 177 U.S. AIR CONDITIONING GRILLES with TIE-BARS**



**The No. 177-H and No. 177-V U.S. AIR CONDITIONING GRILLES "HAVE WHAT IT TAKES"**

**MAXIMUM FREE AREA  
EXTRAORDINARY STRENGTH  
NON-VISION FEATURE  
SILENT PERFORMANCE  
BEAUTIFUL DIGNIFIED  
APPEARANCE—PERFECT  
PERFORMANCE—and  
COMPETITIVE LOW COST.  
REAR-ANGLE SUPPORTS**



**No. 177-H HORIZONTAL STYLE**

**Not a Mere Stamping — A Perfect Assembly. Observe Straight Line of Opening Margins. No Saw-Tooth Interior Margins.**

**NEW TIE-BAR FEATURE CREATES MAXIMUM STRENGTH ELIMINATES AIR-SOUNDS**

**No. 177-V VERTICAL STYLE**



Write for CATALOG

**UNITED STATES REGISTER COMPANY**

**BATTLE CREEK, MICHIGAN  
MINNEAPOLIS • KANSAS CITY • ALBANY**

Coleman **POLAR**  **SOLAR PAK** It heats, it cools. Cuts corners on costs



Another Innovation  
In America's Only  
Bonded Line



#### SIMPLE... DIRECT... LOW-COST

So easy! Just short-couple a 2 or 3 h.p. Coleman Polar-Pak unit to a Coleman furnace and your customer has a Polar-Solar-Pak installation. Furnace blower only is needed for complete circulation of conditioned air - summer and winter. No refrigerant lines. No costly transition ducts. You can do the job at remarkably low cost.

Unlimited application—basement, slab, crawlspace, attic, tri-levels, apartment houses. Furnace and cooling unit each backed by Coleman's famous warranty bond. Ask your Coleman distributor or write

**The Coleman Company, Inc.**  
Wichita 1, Kansas

*Coleman builds the most complete and only bonded line of heating and air conditioning. Investigate!*

# WHAT ASSOCIATIONS ARE DOING

## Reviews Achievements Of Indianapolis Group

INDIANAPOLIS — At the recent annual election meeting of the Heating & Air Conditioning Association of Indianapolis Donald McCloskey, Mid-West Heating & Service Co., was elected to serve as the group's president. Harry Rybolt, Rybolt Heating Co., was named vice president; William Garber Jr., Farquar-Garber Co., treasurer; and Wayne VanFossen, Reliable Heating & Air Conditioning Co., secretary. New directors are Robert Hoyt, Ernest Dison, Anthony Dum, Tom Mutz, Marvin Brezette, Robert Jacobi, Leon Jordan and Jerry Mascoe.

### Cites Achievements

Outgoing president Robert Jacobi reviewed some of the group's accomplishments over the past year and outlined objectives for the months ahead. "The high points of the past year have been numerous," he said. "We held panel discussions to try to find out how to motivate salesmen, how to handle customer complaints, correct purchasing and inventory control, and how to balance and test new installations. One of the most illuminating programs involved participation by members in pricing typical jobs.

### Used Surveys to Get Data

"Our standards committee made two surveys during the past year, one on current wage scales and company fringe benefits and the other on retail prices of refrigeration supplies and controls. We held a school for members interested in the latest methods of figuring heat loss, heat gain, system design and balancing. We also cooperated

with National Oil Fuel Institute in sponsoring an oil burner service course.

### Future Objectives

"What must be done in future months? We need to renew our efforts toward upgrading the pricing of jobs to adequately allow for overhead and a fair profit. Along this line I would suggest several workshop sessions in which members would take an example of a job lost to a competitor on price and show how he figured the job and why he could not make a profit on the job as it was sold.

"We need to increase our membership, and we should look forward to the time when we can have a full time executive secretary.

"We must continue to promote and advertise our association as a group whose members can be depended upon to do quality work at a fair price. With the same kind of cooperation we have had in the past we should be able to make Mr. and Mrs. Citizen of Indianapolis recognize our association members as leaders in the industry."

## Hold Annual Basket Picnic at Lake Villa

CHICAGO — The Furnace Air Conditioning Sheet Metal Institute held its 30th annual basket picnic at the German-Hungarian Old Peoples Home Picnic Grove, Lake Villa, Ill. Swimming, boating and fishing were among the activities enjoyed by the picnickers. Featured event was a baseball game between dealer-contractors and suppliers.

## Discuss State Heating Law At Detroit

DETROIT — Feature of the July meeting of the Detroit Heating and Air Conditioning Association was a discussion of the pros and cons of a state heating law. Speakers stressed the desirability of an early start in the preparation of a proposed bill for presentation at the next session of the Michigan Legislature, which will be shortly after the first of January.

## Show Safety Film At Rochester Meeting

ROCHESTER, N.Y. — A slide presentation on safety was the feature of a recent meeting of the Master Sheet Metal, Furnace and Roofers Association. William Cox, Laverack and Haines, showed pictures taken in local shops showing both safe and unsafe practices.

## Lorenz Winner In First Meet

RUTH LAKE, ILL. — Members of the Chicago Warm Air Golf Association met recently at Ruth Lake Country Club for the first game in the 1961 tournament series. Robert Lorenz, Chicago Furnace Supply Co., turned in the lowest net score — 69.

Runnersup were M. McCall (70) and T. Potts (72), both of Gary, Ind. Winner of the Blind Bogey prize was Joe Butler, Auer Register Co. Second Blind Bogey prize went to George Bunt, Jones Sheet Metal Co.

(Coming Events on page 82)



only  
this  
much  
more



buys this much difference



The little extra you pay for Purolator filters buys features and performance you just don't get in ordinary filters. The picture shows you the difference; here's what this difference means to you:

- ① Nozzles last longer because the Purolator Micronic element filters out abrasive particles as small as 0.0005 of an inch. A waste-type filter medium, no matter how much it's compressed, simply can't filter that fine, even when it's new.
- ② Filters last longer (a year or more without servicing) because every Purolator filter has over 200 square inches of filtering surface, enough to filter over 7,000

gallons of fuel oil without replacement.

- ③ No channeling or unloading, ever, because the Micronic element is precision made from a single pleated sheet of resin impregnated cellulose that resists water and acid, won't shrink, stretch, distort, flake or deteriorate.
- ④ No spillage, no air leaks. The depressed head on the Purolator housing eliminates spillage when servicing. The recessed gasket seal makes an airtight fitting between case and head.

And because Purolator filters filter better, longer, you make fewer trips, have fewer problems fulfilling your service contract. For full information, write to Dept. 2577.

*Filtration  
For Every Known  
Fluid*

**PUROLATOR**

PRODUCTS, INC.

RAHWAY, NEW JERSEY AND TORONTO, ONTARIO, CANADA

## WITH THE ASSOCIATIONS

(Continued from page 80)

### Coming Events

#### October

Oct. 1-4 — American Gas Association, annual convention. Dallas, Texas. C. S. Stackpole, managing director, 420 Lexington Ave., New York 17.

Oct. 22-25 — National Association of Sheet Metal Distributors, annual convention. Hotel Dennis, Atlantic City. Thomas A. Fernley Jr., executive secretary, 1900 Arch St., Philadelphia 3.

#### November

Nov. 6-8 — National Warm Air Heating and Air Conditioning Association, 48th annual convention. Hotel LaSalle, Chicago. James M. Martin, managing director, 640 Engineers Bldg., Cleveland 14.

Nov. 12-15 — Air-Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. Geo. S. Jones Jr., managing director, 1346 Connecticut Ave., Washington 6, D. C.

Nov. 26-29 — Northamerican Heating & Airconditioning Wholesalers, Inc., annual convention. Sheraton-Gibson Hotel, Cincinnati. W. R. Bull, executive director, 1220 W. Fifth Ave., Columbus 12.

#### December

Dec. 3-7 — National Association of Home Builders, annual convention and exposition. McCormick Place, Chicago. John M. Dickerman, executive director, 1625 L St., N. W., Washington 6, D. C.

#### 1962

#### January

Jan. 29-31 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., semi-annual meeting. Chase

Park Plaza, St. Louis. R. C. Cross, executive secretary, 234 Fifth Ave., New York 2.

#### February

Feb. 4-7 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Manger Hotel, Rochester, N. Y. Clarence J. Meyer, executive secretary, 569 Genesee St., Buffalo.

Feb. 9-10 — Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Red Cedar Inn, Austin, Minn. Howard D. Camitsch, executive secretary, 867 Grand Ave., St. Paul 5.

Feb. 12-15 — 12th Exposition of the Air-Conditioning, Heating and Refrigeration Industry. Great Western Exhibit Center, Los Angeles. George E. Mills, show director, Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington 6, D. C.

Feb. 19-22 — Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. James C. Barrett, Michigan Department of Health, Lansing 4, Mich.

#### March

Mar. 5-7 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert S. Schmieder, executive secretary, 8320 W. Blue-mound Rd., Milwaukee.

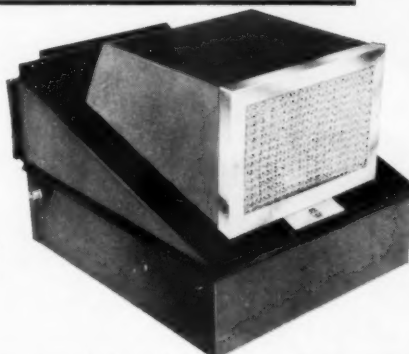
#### May

May 12-18 — Sheet Metal and Air Conditioning Contractors' National Association, annual convention. On board the "Queen of Bermuda" en route to Bermuda. Leaves from New York City Saturday afternoon, May 12. J. D. Wilder, executive secretary, 107 Center St., Elgin, Ill.

# NEW BVI FURNACE HUMIDIFIER



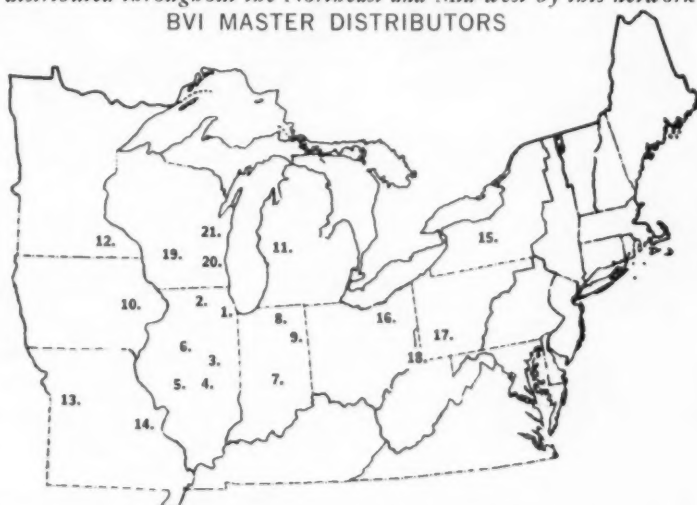
## THE COMPLETE EQUIPMENT PACKAGE FOR CONTROLLED CONSTANT-COMFORT HUMIDIFICATION



**PLUG-IN ELECTRICAL COMPONENT SYSTEM SPEEDS INSTALLATION, INSURES SAFETY.** Here for the first time at a popular price—a compact, dependable, complete humidifier—ready for easy installation

in the return air duct of any warm-air furnace up to 125,000 BTU! Complete with all the controls and accessories to assure automatic "constant-comfort" humidification throughout the house; constant sales throughout the year!

Now distributed throughout the Northeast and Mid-west by this network of  
BVI MASTER DISTRIBUTORS

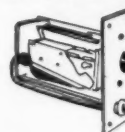


For prices and further details contact your  
BVI MASTER DISTRIBUTOR OR BVI today!

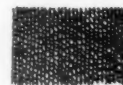
- |   |  |   |
|---|--|---|
| 1. Excelator Steel Furnace Co.<br>546 W. Washington Blvd.<br>Chicago 6, Illinois    | 8. Young Heating Supply, Inc.<br>312 East Wayne Street<br>South Bend, Indiana              | 15. Freling Electric Service<br>311 West Miller Street<br>Newark, New York                    |
| 2. Mott Brothers, Inc.<br>907 South Main Street<br>Rockford, Illinois               | 9. Tri State Heating Supply, Inc.<br>234-236 Murray Street<br>Fort Wayne, Indiana          | 16. The Famous Furnace Co.<br>6420 Woodland Avenue<br>Cleveland, Ohio                         |
| 3. MaGill Foundry & Furnace Co.<br>413 E. Oakland Avenue<br>Bloomington, Illinois   | 10. Johnson Tool and Supply, Inc.<br>700 Second Street, S.W.<br>Cedar Rapids, Iowa         | 17. Myers Furnace Supply Co.<br>1407 Swissvale Avenue<br>Wilkinsburg, Pennsylvania            |
| 4. The Lewie David Company<br>66 Industry Court<br>Decatur, Illinois                | 11. Grand Furnace Company<br>1361 Grove Place, N.E.<br>Grand Rapids, Michigan              | 18. Karr Supply Company, Inc.<br>48 - 18th Street<br>Wheeling, West Virginia                  |
| 5. Capitol Supply Company<br>214-216 East Washington St.<br>Springfield, Illinois   | 12. Comfortrol Supply Company<br>525 Sixth Avenue<br>Rochester, Minnesota                  | 19. Wisconsin Furnace Company<br>1806 South Park Street<br>Madison 5, Wisconsin               |
| 6. Waterbury Heating Supply Co.<br>422-26 N.E. Adams Street<br>Peoria, Illinois     | 13. Excelsior Heating Supply<br>2 East Third Street<br>Kansas City, Missouri               | 20. Wisconsin Furnace Supply Co.<br>6526 West River Parkway<br>Milwaukee, Wisconsin           |
| 7. Capitol Supplies, Inc.<br>417-25 E. Washington Street<br>Indianapolis 4, Indiana | 14. Central Furnace & Stove<br>Repair Co. Inc.<br>3937 Olive Street<br>St. Louis, Missouri | 21. Service and Supply Co.<br>914 W. Wisconsin Avenue<br>P. O. Box 946<br>Appleton, Wisconsin |



## THESE FEATURES MEAN DEPENDABLE PERFORMANCE



**Bendix Friez Humidistat** provides ideal humidity control regardless of temperature of air flow.



**Silicoat® Filter** keeps air clean; resists clogging by dust and foreign elements.



**BVI "AIR FOIL" Centrifugal Atomizer** disperses up to 7 gallons of water in 24 hours.



**Automatic Water Control Valve** keeps water at perfect operating level. Stainless steel valve seat resists liming and corrosion.

**UNCONDITIONALLY GUARANTEED** for one year against defective parts and workmanship.



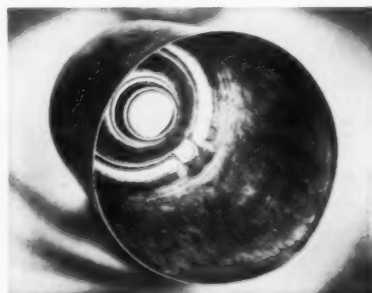
**BURGESS VIBROCRRAFTERS, INC.**  
Commercial Products Division  
Grayslake, Illinois



Here's proof that USS Galvanized Steel Sheets have exceptional workability—twist and bend, and the zinc coating won't flake off.



USS Galvanized Sheets make excellent duct-work. They're strong and rigid. Lock joints stay tighter. Installation is quick and easy.



This "container" of USS Galvanized Steel illustrates the outstanding formability and drawing characteristics of the metal.

United States Steel Corporation • Columbia-Geneva Steel Division  
Tennessee Coal and Iron Division • American Steel and Wire Division  
United States Steel Supply Division • United States Steel Export Company.



**United States Steel**



# EQUIPMENT DEVELOPMENTS

**INFORMATION on capacities, dimensions, applications, and special features in each Equipment Development Item is presented in accordance with material furnished by the manufacturers.**

## Replacement Control Series Introduced

AMONG THE "Tradeline" series of controls are 4 thermostats, 1 oil burner primary relay, and 3 gas valves designed to meet replacement needs for hundreds of separate heating and air conditioning controls. According to the manufacturer, the 170 Tradeline models are accurate replacements for over 93 percent of all existing controls, including brands and models of other manufacturers.

Four special thermostats are offered for replacement purposes; these four models are applicable to installations using any of 133 current Honeywell thermostats and all previously discontinued models, plus many of the out of date models produced by other manufacturers who have gone out of business or discontinued replacement.

One oil burner primary relay, RA817, replaces any of the 49 relay models currently listed in the company line. Three gas valves can take the place of all 49 Honeywell gas valves currently available.

To make replacement easy, the right control can be selected from a cross-reference guide which has been prepared and planned for easy, quick reference — *Minneapolis-Honeywell Regulator Co.*, 2747 4th Av. S., Minneapolis 8, Minn.

## Three Roof Mounted Year 'Round AC Units

THREE MODELS of low silhouetted roof mounted year 'round air conditioning units, 1109-00, 1112-00, and the 1116-00, have nominal capacities of 7½, 10, and 15 tons respectively. According to the manufacturer, the combinations possible with the three different models will take care of many roof top installations. The units are designed for jobs which require cooling only, heating only, or year 'round air conditioning.

Heating units can use natural, mixed or propane gas and the heat exchangers can be placed up stream or down stream of the cooling coil. Additional features are: rugged frame design to withstand

the stresses of rigging and to permit load distribution over a large roof area; ample fan capacity to handle extensive air distribution over a large roof area; factory wired control panels and disconnect switches; clogged filter signal light located on all thermostats; duct flanges are provided for ease of connection to multiple outlet air distribution systems — *Airtemp Div., Chrysler Corp.*, 1600 Webster St., Dayton 1, O.

## Unit Heater, Heat Exchanger Redesigned

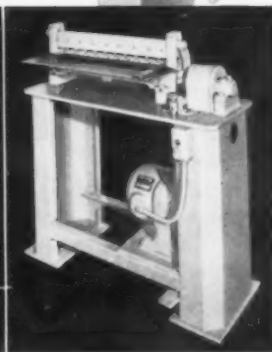
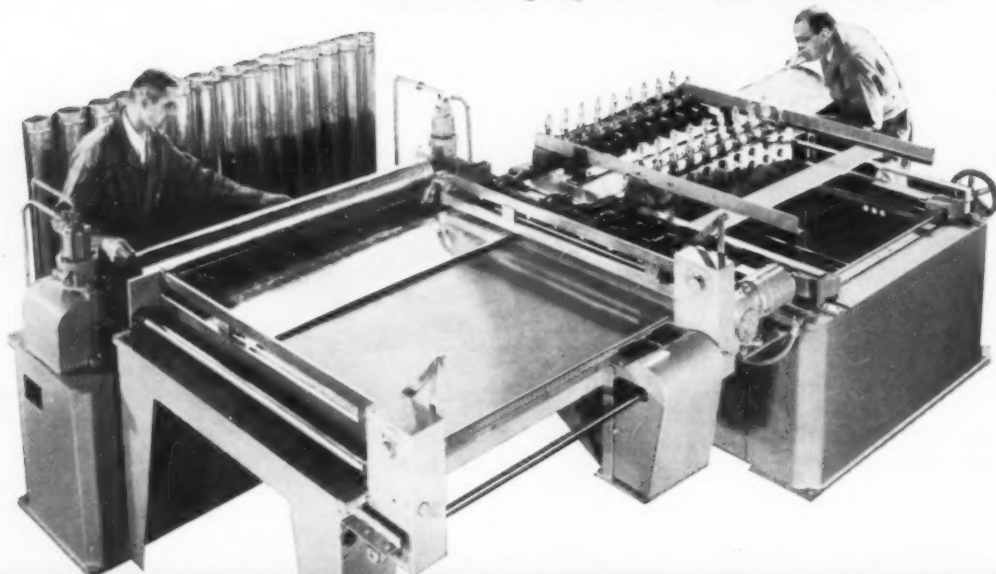
SUSPENDED gas-fired unit heaters are available in nine sizes ranging from 25,000 to 225,000 Btuh input. One of the features of the "Type 160-1" is an aluminized steel heat exchanger designed to improve the performance and extend the life of the unit heater. According to the manufacturer, "Resistal" heat exchangers will withstand high temperature without scaling or discoloring, and are highly resistant to corrosion.

Heaters are shipped completely assembled with controls prewired and drilled-port, cast-iron burners in place. The smallest unit is 21-5/16 in. high, 15¾ in. wide, and 17½ in. deep. The largest is 43¼ in. high, 33¾ in. wide, and 36-1/16 in. deep. Units are finished in a mountain spring green finish — *Mueller Climatrol*, 2005 West Oklahoma Av., Milwaukee 1, Wisc.

## Other Departments

- New Trade Literature . . . . . 102
- We Hear That . . . . . 105
- Wholesaler Doings . . . . . 108
- Appointments . . . . . 109

**How MAPLEWOOD  
engineers produce  
up to 25,000 feet  
of 5' pipe in 8 hours!**



**This complete line  
MAPLEWOOD Pipe and Duct Machinery**

- G-924 Panel-Type Snap-Lock
- GHA-5 Automatic Intermediate Feed Table
- GHA-10 Automatic Intermediate Feed Table
- H-60 Air-Operated Roll, Crimp & Bead with Micro-Switch Trip
- H-120 Air-Operated Roll, Crimp & Bead with Micro-Switch Trip
- C Elbow
- CA Air Operated Elbow
- P Hand Gap Gang Punch
- MP Power Gap Punch

**Fully Described in NEW CATALOG NO. 1701  
Write NOW for a copy!**

Maplewood engineers transfer panels automatically with a new intermediate feed table between the panel snap-lock roll-forming machine and the roll. Automatic transfer permits the roll former and roll to operate at maximum high speeds. Production increases accordingly, reducing cost per pipe section drastically.

Ask a Maplewood engineer to quote on your production requirements, and then make any comparisons you desire. The results will show the definite advantages of buying Maplewood equipment.



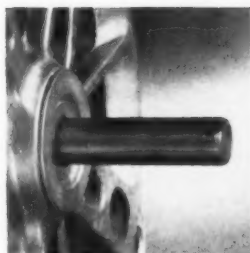
**MAPLEWOOD  
DIVISION**

**Complete Roll Forming Production Lines**

**ROCKFORD MACHINE TOOL CO., ROCKFORD, ILLINOIS**



# INSTALL IT! FORGET IT!



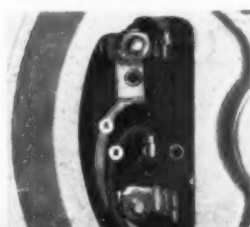
**SHAFT PROTECTION**—new gun-metal-like treatment of shaft resists rust so the blower is always easy to remove.

**FAST ROTATION CHANGE** cuts your inventory in half. Simply reverse leads ("A" to "B").



**AIR-SHIELD DESIGN** transmits heat swiftly, greatly reducing "trip-outs" that result in time-consuming service calls.

**4-YEAR LUBRICATION** at factory practically eliminates reoiling. Motor has doubled oil supply.



## It's that simple when you use General Electric oil burner motors

General Electric oil burner motors will give years of reliable service on the oil burners you install, service, or build. These long-life motors help eliminate many call-backs and emergency service calls . . . increase your customers' satisfaction in you.

Here are five reasons why General Electric oil burner motors give long life: 1) four-year lubrication at the factory; 2) special air-shield design; 3) rust-resistant shaft; 4) wear-resistant switch; and 5) moisture-resistant Mylar\* polyester film insulation.

All these extra-value features are yours when you specify "G-E motors" on the oil burners you buy. They're also ideal for replacement purposes. For more information, write Section 722-09, General Electric Company, Schenectady 5, N. Y.

\* Registered Trade-mark of DuPont Co.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**

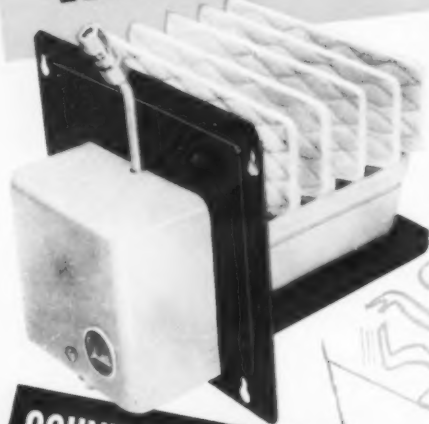
OLD STYLE G-E FORM 6

# Skuttle's



## Compact

### MODEL 711



## COUNTER-BALANCED HUMIDIFIER



For happy little homes

This low-priced, highly efficient unit requires just one installation — one adjustment. Designed without moving parts for trouble-free operation, the Model 711 is shipped completely assembled with 5 Vapoglas plates, stainless steel plate rack, and reversible valve seat. Perfect for the smaller home, this compact unit is easily installed and self-compensating to variations in water pressure.



#### PATENTED VAPOGLAS PLATES

Made of compressed pure glass wool, Skuttle Vapoglas plates are patented for quality protection. Extremely porous (they absorb up to 70% more water per pound than ordinary filter plates), they resist clogging longer.

**Skuttle**

MANUFACTURING CO., Milford, Michigan

Dept. AA

Gentlemen: Please send complete information on

- ☐ Skuttle Model 711   ☐ Vapoglas Plates  
☐ Skuttle's Complete Line of Products

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

## equipment developments

(Continued)

### Built-in Heat Pump For Curtain Wall Panels

AIR-TO-AIR heat pump units are now available as a built-in feature of curtain wall panels. "Comfort-Conditioning" combines in a single system: exterior walls, heating-cooling-ventilating units, and (where desired) undersill storage cabinets. The system, where applicable, offers the advantages of individual room-by-room control.

The heating-cooling units are entirely electrically operated; each unit is individually controlled and will supply heating or cooling to the desired degree independently of conditions elsewhere in the building, according to the manufacturer.

Units have cooling capacities of from 7000 to 16,000 Btuh, and can be easily interchanged to compensate for any variations from the initially calculated load. Switch from cooling to heating is instantaneous. Operating as heat pumps these units are designed to be adequate for all heating purposes during change of season or where design temperature is not extreme. All components are selected for low noise level and are balanced for over-all efficiency, according to the company. — *Michael Flynn Mfg. Co., 700 E. Godfrey Ave., Philadelphia 24, Pa.*

### Socket Extension, Wrench Perform Varied Servicing Operations

A RIGHT-ANGLE, gear-driven socket extension with 2 to 1 gear ratio, the "Reechet" tool, No. 8865, is designed to fit all standard three-eighth inch square sockets, extensions, and handles.

Using the socket extension, with or without other socket extensions, one is able to turn standard box-sockets in hard to reach locations; the tool also permits nuts and screw heads to be turned without the removal of interfering parts, according to the manufacturer.

Also announced by the manufacturer is a combination wrench, "Reeferench" tool, available for use in repair and servicing work. The tool, No. 8860, is designed to fit all caps, valve stems, and tubing nuts on refrigeration compressors.

This tool, 6 1/4 in. long, incorporates a 1/4 in. open-end wrench for loosening and tightening valve stems; a 1/4 in. reversible ratchet for high speed adjusting of valve stems; a 13/16 in. open-end wrench correctly angled for turning major tubing connections in tight quarters; a 7/16 in. open-end wrench for quick handling of valve stem covers; and a 3/8 in. square for opening and closing refrigerant tank valves — *Airserco Mfg. Co., 435 Melwood Av., Pittsburgh 13, Pa.*



**equipment  
developments**  
(Continued)

**19 Models Expand  
Oil-Fired Furnace Line**

FOUR HIGHBOY, three counterflow, five lowboy, and seven horizontal models make up the 1961 line of oil furnaces. According to the manufacturer, models are designed to provide continuous circulation of filtered air under all operating conditions. Capacity range is from 85,000 to 325,000 Btuh; blowers are designed for add-on central air conditioning.

Heat exchangers are made of 16 ga steel. Combustion chambers are of stainless steel construction; according to the company, special construction of the combustion chamber and built-in sound control features insure quiet operation. Burners and all controls are factory mounted within the furnace enclosure on all highboy, lowboy, and counterflow models.

A stack control, thermostat with heat anticipator sized to the current draw of the stack control, and fan-limit switch with adjustable fan differential are standard equipment. Cabinets are finished in two-tone medallion gray enamel — Coleman Co., Inc., St. Francis & Second St., Wichita 1, Kans.

**Control Regulates  
Air Delivery Rate**

"THERMODRIVE," a variable speed blower control for use with any residential air distribution system is said to minimize air stratification by circulating it longer than conventional blower methods.

In operation, a flexible hose passes sample plenum air over a shrouded bellows which expands or contracts in response to the temperature of the air sample. Bellows pressure against a split pulley on the motor shaft changes its diameter, thus varying the speed of the blower pulley. The blower starts slow at low heat, reaches



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WORK**

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Silvercote fiber glass duct insulations  
with their exclusive facings and coatings.*



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**DUCT LINER** The uniformity and sturdiness of Silvercote liners really pay you dividends! This high-grade fiber glass product, with its many coatings, assures you top performance and customer satisfaction. You'll find it easier to use and it's longer lasting. Ask about the special Silver Vinyl coating and FR (flame resistant) Duct Liner.

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**FIBER GLASS • WOOD FIBER • REFLECTIVE • FOAMED**

**FIBER GLASS PIPE INSULATION • SILVERCEL DUCT INSULATION  
• FINE-FIBER DUCT INSULATION • CELL-TITE FOAMED  
INSULATION TUBING • INSULATION ADHESIVES • DUCT TAPE  
• RIGID INSULATION • SILVERCEL & FINE-FIBER EQUIPMENT INSULATION**

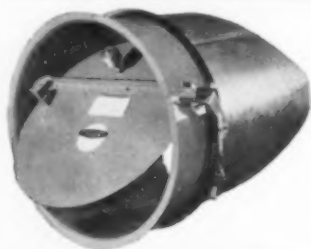


## **FIELD DRAFT CONTROLS**

**for oil,  
gas, oil-gas, coal  
and wood**

**FOR  
FURNACES, BOILERS,  
INCINERATORS, STOVES,  
AND RANGES**

**in all sizes  
for flues from  
5" through 34"**



### **FIELD CONTROL DIVISION**

Conco Engineering Works, Inc., Mendota, Illinois  
AFFILIATES:

Spartan Tool Division — Powered Sewer Cleaning Equipment  
Materials Handling Division — Cranes, Hoists  
Conco Building Products, Inc. — Bricks, Tile, Stone

### **equipment developments** *(Continued)*

normal speed as heat increases, and reduces speed gradually after the burner has been turned off by the thermostat.

The control is now available as factory installed, optional equipment on the company's own gas- and oil-fired furnaces and as standard equipment on its electric furnaces. Also available is a Thermo-drive kit which can be installed on existing furnaces, new and old, according to the manufacturer — *Thermo-Products, Inc., North Judson, Ind.*

### **Unit Heater Has Sealed Combustion Chamber**

"SEALED/FLAME" gas-fired unit heater is designed to combine uniformity of room temperature with complete safety of operation, and is said to be especially suitable for areas where a negative pressure may be created by an exhaust system.

No open flame is exposed to the room. By means of an exclusive sealed combustion system, spilling of combustion products into the heated space is prevented regardless of conditions inside or outside of the building. All combustion air is drawn from outside the building through separate inlet ducts. All exhaust gases and products of combustion are vented to the outside under pressure through a separate flue.

In the event of pilot extinction, a purge period occurs before the pilot can be lighted again. The unit has a high limit control which prevents overheating. A relay, which operates on amperage draw of the motor, prevents the main gas valve from opening unless the motor is running and the pilot lit.

The unit is available in two models, the "Radial-Flo" unit which distributes a complete circle of warm air downward and outward, and the "Down/Blo" model

**equipment  
developments**  
(Continued)

for high ceilings and doorway applications. Two sizes are available with inputs of 115,000 and 85,000 Btuh. Units can be mounted in either flush to ceiling or non-flush position — *John J. Nesbitt, Inc., State Road & Rhawn St., Philadelphia 36, Penn.*

**Gutter Screens Feature  
Clip-on Installation**

GUTTER-SCREEN comes in three foot lengths that provide easy installation. No tools are required for installation. Special spring clips work equally well on square or round gutters. According to the manufacturer, all that is required of the installer is to insert one edge of the screen under the roof edge and fasten the other edge to the gutter with three clips per section.

Openings are small enough to keep "pin-wheel" seeds out of gutters. The surface of the screen is crimped so that wet leaves won't cling to gutters and rain water doesn't drip down the sides of the gutters. The screen is reinforced with braid along both edges. The entire unit is heavily galvanized for durability. It is packed in 3 ft lengths with 20, 40, or 100 lengths per carton. Clips are included — *Reynolds Div. National-Standard Co., Dixon, Ill.*

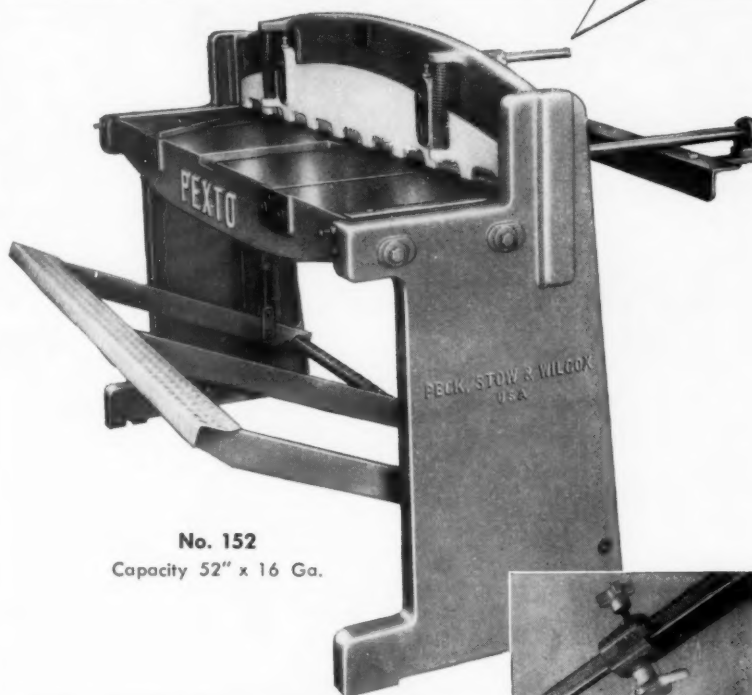
**14 Fractional HP Motors  
Available in Four Types**

A LINE OF 14 different fractional hp, frame size 11, (4 $\frac{3}{8}$  in. diameter) ac motors for air handling equipment is now available. According to the manufacturer, these motors were designed to meet the demands for adequate power consistent with compact packaging, and fulfill the size requirements between the company's 3 $\frac{7}{8}$  in. and 5 $\frac{3}{8}$  in. frame units.

The motors are available in four

... especially for today's

**FOUR FOOT SHEET STOCK!**



**No. 152**  
Capacity 52" x 16 Ga.

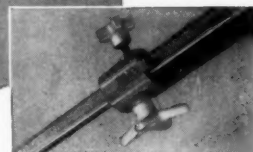
**PEXTO**

This precision FOOT SQUARING SHEAR is outstanding for modern, fast cutting of squared blanks. Shears up to 16 gauge mild steel, copper, brass, aluminum, lead, zinc, plastics and many other materials. No. 152 is highly profitable for today's shearing of four-foot sheet stock. Safe, easy action, fully gauged, heavy machine-tool standard construction for maximum rigidity.



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Adjustable back gauge-graduated



Bevel gauge, quick setting



Side gauge, graduated

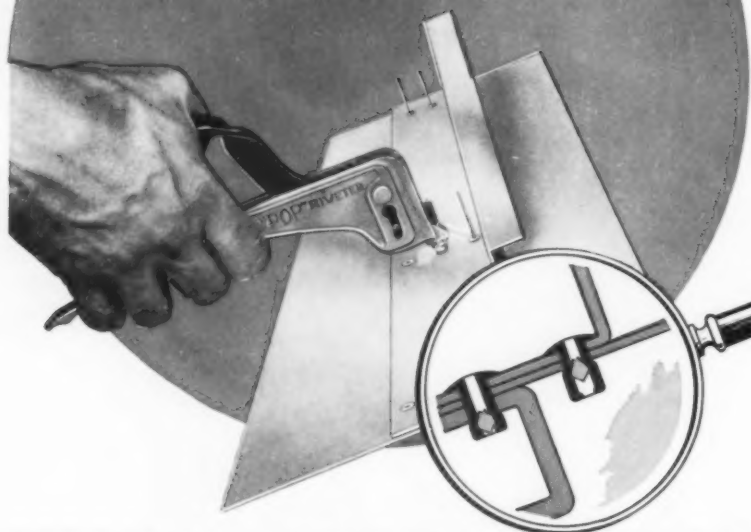


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**THE PECK, STOW & WILCOX CO. Southington, Conn. U. S. A.**

A complete line of machines and tools for Sheet Metal Fabrication.

ONE OF THE  
ONE DOZEN REASONS WHY  
**UNITED "POP" RIVETS**  
run rings around the rest



## WIDE GRIP RANGE

Wide grip range lets you use just one rivet length for thick or thin work sections. For example, a No. 610 "POP" Rivet has a grip range of nearly 5/8" and can be used for work from .020" to .065" in thickness! This simplifies your fastener specification problems . . . and greatly reduces your inventories. Ordering greater volume per size, you'll secure the lowest possible rivet price. You'll eliminate a source of operator error, because "POP" Rivets don't depend on close matching of rivet length to work thickness for high fastening quality. And this same non-critical length factor also makes "POP" the ideal fastening for thin materials; even .020" soft aluminum can be fastened securely without stripping!

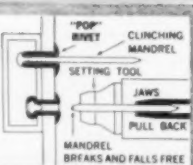
If you want to improve the quality, appearance and sales appeal of your products . . . and cut fastening costs at the same time . . . be sure to investigate all of the reasons why "POP" Rivets run rings around the rest! Write today for complete information . . . and for the name of your local "POP" Rivet Distributor.

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UNITED  
**"POP"**  
RIVETS

#### HERE'S HOW THEY WORK

"POP" Rivets are inserted and set from the same side: (1) Rivet is inserted in the work. (2) Jaws of the easy-to-use setting tool grasp the mandrel. (3) Tool is operated. Jaws pull back. Rivet is set. Mandrel breaks and falls free.



FASTENER DIVISION • UNITED SHOE MACHINERY CORPORATION  
1830 River Road, Shelton, Connecticut, U.S.A.

## equipment developments

(Continued)

distinct types: low slip induction; torque; single, dual and three speed hysteresis motors. Operation is on 60 or 400 cycles, single, two or three-phase, 115 volts or 120/208 volts. Horsepowers developed range from 1/15 to 1/3 hp and up to 3300 rpm, depending on the application. Dimensions range from 3 13/16 in. in length, up to 6 13/16 in., with the motor diameter remaining constant at 4 4/8 in. Weights range from 4 lb for the smallest to 18 lb for the largest size.

Motor housings are aluminum, cast around the laminations and the die cast end-bells are rabbeted to the frame. According to the company, this method of manufacture assures accurate ball or sleeve bearing alignment and a uniform air gap between the stator and motor. The motor shaft is supplied to meet the customer's requirement — *Ashland Electric Products, Inc., 32-02 Queens Blvd., Long Island City 1, N. Y.*

## Duct Heater Blower Capacities Increased

CAPACITIES of the "K Series" cabinet blowers for use with direct-fired duct heaters have been increased, permitting their use in higher capacity heating and cooling systems than previously, and the use of longer duct runs in systems, according to the manufacturer.

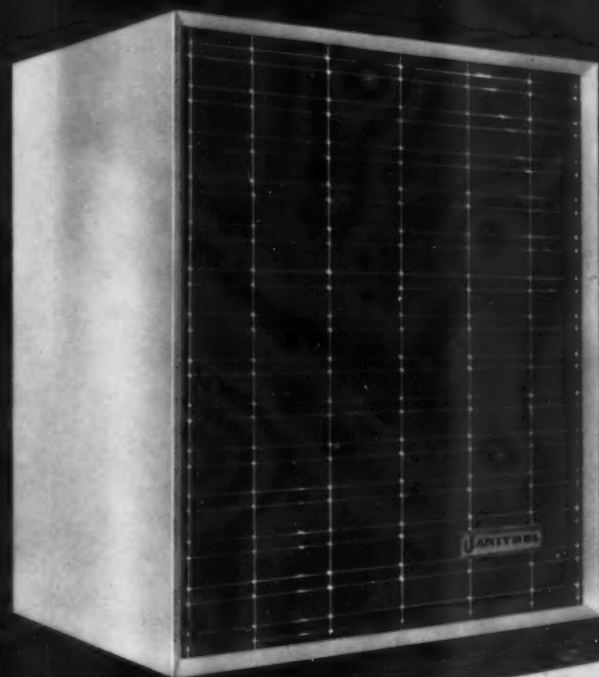
Model K1, utilizing a single blower, now is available in capacities of from 2000 to 9000 cfm. Model K2, with two blowers, now has a capacity of from 4000 to 15,000 cfm.

Designed to match the company's gas-fired duct heaters, the series is also now available with a 7½ hp motor. Matching filter cases may be ordered for use as independent sections or as companion sections for the blowers.



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*presents a  
dramatically new  
achievement...*



## 67 SERIES GAS-FIRED UNIT HEATERS



UNPRECEDENTED STYLING, PERFORMANCE AND DURABILITY TO  
MEET THE MODERN TREND IN ARCHITECTURAL DESIGN

provide the ultimate in quality  
and economy

## new JANITROL GAS-FIRED

commercial & industrial heating equipment

ALL NEW! JANITROL 67 SERIES UNIT HEATERS  
FEATURING... STELLAR NEW STYLING, PERFORMANCE  
AND DURABILITY!

New Janitrol 67 Series Unit Heaters are unusually handsome... incredibly quiet and efficient. They bring you, for the first time in unit heater history, distinctive appearance you can recommend for the smartest business setting. And they offer in even greater measure the traditional Janitrol quality and dependability in heating.

Their clean, crisp "look" is a departure from the crude, cumbersome industrial appearance of yesterday. Modern machine tools, trucks and structures have evolved as attractive, functional designs. And now, Janitrol sets the pace in unit heater styling!

The draft hood opening and adjustable louvers are concealed by the beautifully styled gold-tone grille. The rear combustion air inlet permits use of a solid bottom panel... eliminates any possibility of obstruction to combustion air intake.

Inside, design progress is equally significant. Yet every part is proven... every safety feature is included. Result? Performance no other unit heater can duplicate.

Naturally, the "heating heart" of every new Janitrol is the famous Janitrol Multi-Thermex heat exchanger with this unchallenged record for durability and low maintenance: among nearly three million heat exchanger tubes produced since 1940, replacements for all causes have run less than 1/4 of 1%.

Investigate the many exclusive advantages of Janitrol 67 Series Unit Heaters for jobs you specify or install. Let them help build your reputation for quality.

### FEATURES THAT MAKE ALL OTHER UNIT HEATERS OLD-FASHIONED!

New "sheer look" styling—Beautiful Phoenix Beige finish  
• New gold-tone grille. Conceals louvers and draft hood opening  
• Low overall height  
• Automatic controls—Fully accessible  
• Factory-fired  
• Low Voltage Gas Controls—Standard  
• Low Voltage Sensitive Thermostat—Standard  
• Limit control—interrupts control circuits and shuts off fuel if unit temperature becomes excessive  
• Thermopilot Shut-off. Shuts off all gas, including pilot, in event of pilot flame failure  
• Automatic Pilot. Exclusive Janitrol low Btu. non-linting design  
• Quiet air delivery. Acceptable for schools and other applications where conventional units are too noisy  
• Motor prelubricated for 5 years  
• Built-in Draft Hood. Removable, provides full access to heat exchanger. Protects burners from abnormal up or down draft  
• Combustion air inlet. At bottom rear, through control enclosure. Controls constantly cooled by combustion air stream. Eliminates cross draft on burners  
• Ampli-Fire Ribbon Flame Burners. No flame contact on metal. Removable, with non-linting air shutters featuring thumb-screw adjustment. Eleven models from 30,000 to 250,000 Btu/hr.

### MEET EVERY COMMERCIAL AND INDUSTRIAL HEATING NEED FROM JANITROL'S BROAD LINE



#### GAS-FIRED DUCT-FURNACES

Install in a duct where air is circulated by separate blower. Adaptable for use with cooling. Two sizes: 200,000 and 300,000 Btu/hr. input—may be combined to provide capacity from 200,000 Btu/hr. up, in increments of 100,000 Btu/hr. input. Six sizes from 50,000 to 225,000 Btu/hr. in Duct 55 models.



#### BLOWER-TYPE UNIT HEATER

Allows air delivery from greater heights and against greater static pressures. Models with exposed or enclosed blowers. A.G.A. approved as low and high static-type blower unit heater for air delivery to duct system up to 1.0 in. W.C. external static. Heat sections factory assembled. Sizes: 300,000, 400,000 and 500,000 Btu/hr. input.



#### FLOOR-TYPE UNIT HEATER

Cold air drawn from floor level is heated, filtered and discharged horizontally overhead. Quiet, clean, carefree—ideal for offices, restaurants, stores, labs, etc., requiring a compact unit.



#### HEAVY DUTY BLOWER HEATERS

For unit heating, central heating and air conditioning. Wide range of standard blowers and motors assures correct air delivery and temperature rise in each application. Factory assembled and tested. Capacities from 250,000 Btu to 1,750,000 Btu/hr. input.



#### HORIZONTAL OIL UNIT HEATER

For suspension overhead. Saves floor space. Compact, efficient, low-maintenance design clean and quiet in operation. May also be used to feed duct system. Choice of sizes from 84,000 to 250,000 Btu/hr. output to meet all needs.

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write today for complete information on Janitrol units  
for heating with clean, economical gas in buildings of every type.  
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## equipment developments (Continued)

Statically and dynamically balanced, the blowers are housed in vibration-free cabinets of heavy gage steel. Their closure panels, which fit flush, are easily removed for access to motor and drive. Suspension or base mounting of the units is simplified by use of threaded mounting pipes — *Reznor Mfg. Co., 6 Union St., Mercer, Penn.*

### One Hand Operated Lever Lock Pliers

DESIGNED FOR fast adjustment and simple thumb trigger release, "Gripso" lever action locking pliers can be adjusted with one hand to proper pressure. All parts are manufactured of high grade alloy tool steel. The tool is furnished with hardened steel serrated jaws which are easily replaced with soft blank jaws that can be machined to suit special applications for either holding, crimping, or bending. Normal hand pressure converts to 2000 lb pressure at jaws — *Standard Fittings Co., 82 Herbert St., Framingham, Mass.*

### Power Roof Ventilators For Hot, Corrosive Air

BELT-DRIVEN UNITS for installations where hot, moist, corrosive, or fume-laden air is exhausted have been added to the line of power roof ventilators. In "Wing-Jet Belt Driven" power roof ventilators, the fan is belt-driven by a motor mounted in a weatherproof housing outside the air stream. Rigid motor supports are welded to the outside of the ventilator casing. Belt tension is readily adjustable.

Features include all-welded construction, fan blades of true airfoil section; sealed, pre-lubricated self-aligning fan bearings; nylon damper hinge bearings for quiet damper operation; hinged dis-



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*Enduro® Stainless  
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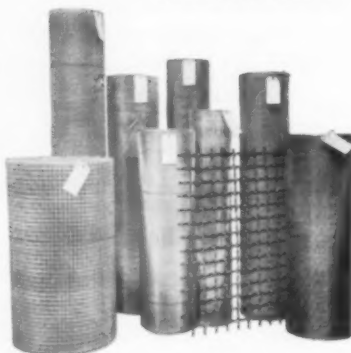




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**CLEVELAND MANUFACTURES WIRE SCREEN  
FOR ALL HEATING AND VENTILATING  
APPLICATIONS**

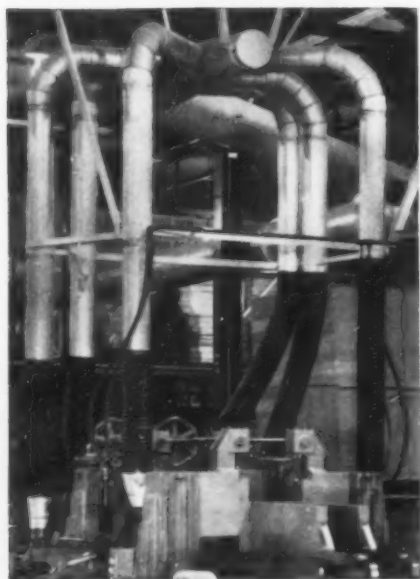
To provide long-lasting, dependable protection of heating, ventilating and air conditioning systems, Cleveland weaves a full range of wire screen meshes. Thousands of stock items—in all meshes, wire sizes, metals and alloys are available for immediate shipment. Order in rolls or flat pieces. Bulletin 160 contains complete information and specification tables on woven wire screen. Write for your free copy today.



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## YOU SAVE MORE WITH FLEXAUST® HOSE



Thousands of successful installations prove that use of Flexaust hose and Portovent retractable duct with metal duct systems lower installation costs — but there are other important advantages

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- Corrosion resistance
- Noise absorption
- Durability under heavy flexing
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*Made of high quality neoprene coated fabrics 1 1/4 to 36" i.d.*

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NEW YORK 17, N. Y.

## equipment developments *(Continued)*

charge for safe, easy access; and leakproof, lightproof dampers. Corrosion-resistant metals or special protective coatings are available.

Ventilators are available in twenty sizes and free air delivery capacities from 2000 to 60,500 cfm. Capacities at 1/2 in. static pressure range from 1350 to 53,000 cfm — *L. J. Wing Mfg. Co.*, 2300 N. Stiles St., Linden, N. J.

### Compact Units Added to Compressor Series

DIMENSIONS that characterize compactness are featured in the DNR series of air cooled remote compressors for residential and light commercial air conditioning. Model 30 DNR, rated at 30,000 Btuh at 95 F, is to be followed by the 5 ton, 60,000 Btuh model 60 DNR, according to the company.

Model 30 DNR is 16 7/8 in. wide; it can be used for snug, side wall applications. It is 25 13/32 in. high and 44 1/2 in. long. The narrow width has been achieved by a side intake, top discharge pattern of handling condenser air.

The condenser coil is 5.53 sq ft. 3-row design with 1/2 in. tubes and 13 rippled-surface aluminum fins per inch. It includes liquid refrigerant sub-cooler and a liquid sightglass with moisture indicator. The fan is a 16 in. propeller type, powered by a 1 1/4 hp. 1050 rpm motor.

The model is equipped with a 3500 rpm compressor occupying a partitioned compartment with all controls. It is factory charged with R22 for 25 ft. of tubing. Controls include compressor relay, transformer, and high and low pressure controls.

Both liquid and suction line service valves are provided for convenient connection and servicing — *Day & Night Mfg. Co.*, P. O. Box 2222, La Puente, Calif.



## equipment developments

(Continued)

### Door Louvers Available In Two Mounting Frames

"C/S" EXTRUDED aluminum door louvers feature lightproof, soundproof, and adjustable models.

The adjustable door louver, in 16 ga aluminum, provides a high free area in open position and is designed with all blades center pivoted to adjust from fully open to fully closed positions.

The sound absorbing door louver is treated with an acoustical barrier bonded to the underside of a sightproof blade. The lightproof door louver gives protection against extraneous light leakage. A dull black painted finish allows minimum light reflection.

Door louvers are available in a wide range of sizes and free areas. Two blade styles and two frame sizes are offered. The A frame louver uses traditional wood moulding. The L frame is supplied with a matching extruded trim frame which clamps the louver in the door opening — *Construction Specialties, Inc.*, 55 Winans Ave., Cranford, N. J.

### Portable Arc Welder Welds up to 1/2 in. Plate

PORTABLE ARC WELDER, 125 amp, weighs 45 lb and measures 12 x 16 x 9 in. It will weld anything from light sheet metal to 1/2 in. plate. No special electrodes are required. Welding range is from 25 to 125 amp in 12 heat stages, and the unit operates from any 115 to 230 volt a-c line, with 75 volts open circuit for easy arc starting.

A major feature is a fan-cooled transoidal transformer designed to keep its heavy duty windings ventilated and to supply high efficiency with low weight factor. The welder is housed in a one-piece molded glass fiber case which is rust-proof and dent-proof

to eliminate possible electrical losses that might result from the use of metal. An "island" base gives sturdy footing.

It is supplied complete and ready to weld, with all accessories including cables, electrode holder, and welding helmet, together with an initial supply of electrodes — *Bren/Weld Sales, Inc.*, 5114 Third Ave., Brooklyn 20, N. Y.

### Spray Adhesive Bonds Insulating Materials

A LOW PRESSURE spray-applied adhesive, "Anchor Spraygrip," is designed for use where lightweight pieces of insulating materials must be bonded in place.

Sprayable at pressure of 5 psi, the product provides adhesion of metal and plastic panels to the insulating materials used in such applications, including felt, asphalt-impregnated paper, glass fiber and polyethylene. At 5 psi, application provides minimum of disturbance to components.

A one-surface adhesive, "Spraygrip" is sprayed on ready for immediate assembly; according to the manufacturer, open time is long enough to allow positioning of component pieces. The product is said to be resistant to moisture and to extremes in normal temperatures encountered in ductwork, remains flexible, and does not crystallize. The adhesive is available in 55-gallon drums and in one- and five-gallon containers — *Anchor Adhesives Corp.*, 36-23 164th St., Flushing 54, N. Y.

### Filter-Grille for Living Area Installation

FILTER-GRILLE combination with a hinged frame and greater free area is designed for installations where heating or air conditioning units are located in attics, crawl spaces or other locations inaccessible to customers. The grille has face bars stamped on 1/2 in. centers and a 30 deg deflection. The



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Enduro® Stainless  
Steel distributor...

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## equipment developments

(Continued)

bars eliminate visibility of filter surface and permit installation with deflection either up or down.

No tools are required to replace filters since a thumb nut and one slip-in filter clip are the only two parts removed for replacement. Filters are recessed approximately one inch behind the grille face to provide a greater efficiency and utilization of filter surface.

All standard one-inch-thick permanent or replaceable type filters can be used. Produced in a bufftone finish, the grilles are available in all standard stock sizes — Auer Register Co., 6600 Clement Av., Cleveland 5, O.

### Four New Models Expand 1961 Gas and Oil Furnace Line

COMPACT GAS furnace, 51,000 Btuh input, delivers 40,800 Btuh at the bonnet and is shipped completely assembled with controls mounted, pre-wired and plumbed. The "GH7D-51" is approved for all gases and carries zero clearance approvals for both sides and rear, according to the manufacturer. Permits installation in a closet using floor space of 12 x 27 $\frac{7}{8}$  in. The unit is 37 in. high. A mesh rack using bulk filter material is provided.

Highboy gas furnaces, "GH61" series, are a modification of an earlier model; the major change is a reduction in height to 54 $\frac{1}{2}$  in. "A-coil" cooling evaporator for these furnaces allows ductwork to be taken from the plenum as low as 61 in. above the closet floor.

Another innovation in the "GH61Q" furnace in this series is the use of a permanent split capacitor motor in the direct drive blower. Motors are equipped with a four speed controller and two-position switch can be connected for quick selection of two of the four available speeds, one for air conditioning and the other for heating. Approvals are for all gases. Zero clearance ratings are given for both sides and rear and 1 in. at the top.

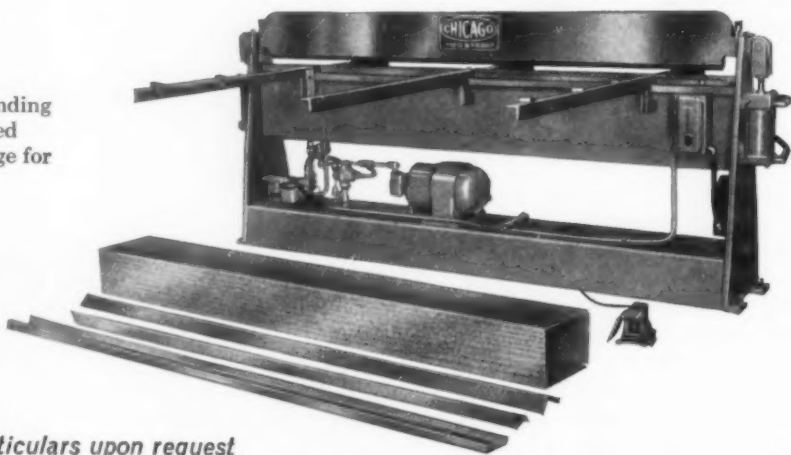
Horizontal oil furnace, "OS6-119," features circulating of combustion products giving an overall efficiency of 80 percent and combustion CO<sub>2</sub> performance of 10 percent at a zero smoke reading. According to the manufacturer, by routing the flue gases through the wrap around secondary heat exchanger twice, additional heat is wrung from the products of combustion before entering the flue. This is accomplished by a baffle in the secondary heat exchanger or radiator that forces the flue gases to make this double pass.

Nozzle furnished is 0.75 gph providing 105,000 Btuh input and 84,000 Btuh at the bonnet. Approved nozzle size (maximum) is 0.85 gph giving 119,000 Btuh input and 95,000 Btuh at the bonnet. The unit

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## equipment developments (Continued)

is designed to be fired from either side and the blower-filter section to be installed at either end — *Lennox Industries Inc.*, 200 S. 12th Av., Marshalltown, Iowa.

### Paperboard Frame For Odor Filters

DISPOSABLE odor remover "Dacor 5D" has a gridwork of activated charcoal coated fiber strips assembled in a sturdy paperboard frame. Designed for use in forced air ventilating systems, these filters are light in weight, have low resistance to air (0.04 at 300 ft per minute), and are easily installed and disposed of without mechanical change, according to the manufacturer. The filter can be ordered for any required frame specifications and is available from stock in all standard sizes with or without dust media — *Barnebey-Cheney Co.*, Cassady at Eighth, Columbus 19, Ohio.

### Electric Drill Allows Close Quarter Operation

RECENT ADDITION to the company's new product line, the "Dirk," 1/4 in. electric drill is designed principally to give the operator better control of the tool; to make it possible to work in closer quarters; and to reduce operator fatigue.

The motor is set at a right angle to the drilling axis. Power from the full 3 ampere motor is transmitted by patented spiroid gearing. The hand grip of the tool is large enough for the operator to hold the drill with all four fingers of his hand. The trigger switch — which cannot be tripped accidentally — is controlled by the index finger.

The drilling axis is in direct line with the natural application of pressure. The motor housing is offset so that it is possible to use the drill close to a wall or other

obstruction parallel to the drilling axis.

Another feature is a flat pedestal base. It can be stood upright without risking the accidental snapping of the bit or of scratching polished surfaces. The hand grip is separated from the housing so that heat is not conducted to the handle — *Disston Div., H. K. Porter Co., Inc.*, 74 Foley St., Somerville 43, Mass.

### Low Capacity Blowers For Exhaust Systems

A LINE of low capacity centrifugal blowers is now available with cast iron wheels. According to the manufacturer, the compact design of the low volume blower is excellent for use in exhausting fumes from chemical laboratories, handling light dust from polishing wheels and grinders, or for any exhaust purpose where low air volumes are used.

Blowers have cast, radial bladed wheels, dynamically balanced and mounted directly on the motor shaft. Four sizes with nine capacities are available. Optional features include a cast aluminum wheel and choice of enclosed motor types — *General Blower Co.*, 8618 Ferris Av., Morton Grove, Ill.

### Electric Furnace has Two Piece Construction

"FLEXAIRE" ELECTRIC furnace features two piece construction consisting of heating section and blower section. Measuring 18 1/2 in. high, the unit is designed for attic or basement ceiling installation.

The furnaces are available in a range of from 34,000 to 68,300 Btu/h. in 10, 15, and 20 kw models, each operating in 5 kw stages. An accessory thermostat provides indoor circulation even when the heating elements are not operating. The furnace blower has been designed to handle summer air conditioning air volumes — *Fedders Corp.*, 58-01 Grand Ave., Maspeth 78, N. Y.



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Brace Mueller Huntley, Inc.  
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Hubbell Metals Inc.  
Indianapolis 2, Indiana  
Huron Steel Company  
Detroit 16, Michigan  
Merier Bros. & Aluminum  
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Dayton 2, Ohio  
Vorys Brothers, Inc.  
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Hubbell Metals Inc.  
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Marsh Steel Corporation  
Wichita, Kansas  
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Works, Inc.  
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Reynolds Aluminum Supply Company  
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Savannah, Georgia  
Raleigh, North Carolina  
Richmond, Virginia  
J. M. Tull Metal & Supply Co., Inc.  
Jacksonville, Florida  
Miami, Florida  
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Atlanta 2, Georgia  
Atlantic Steel Company  
Atlanta 1, Georgia  
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Hill-Chase Steel Company  
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Hubbell Metals Inc.  
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Memphis, Tennessee  
Williams and Company, Inc.  
Louisville 3, Kentucky  
Mid-State Steel, Inc.  
Nashville, Tennessee  
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Phoenix, Arizona  
Marsh Steel Corporation  
Denver 16, Colorado  
Pacific Metal Company  
Boise, Idaho  
Structural Steel and Forge Co.  
Salt Lake City, Utah

#### PACIFIC STATES

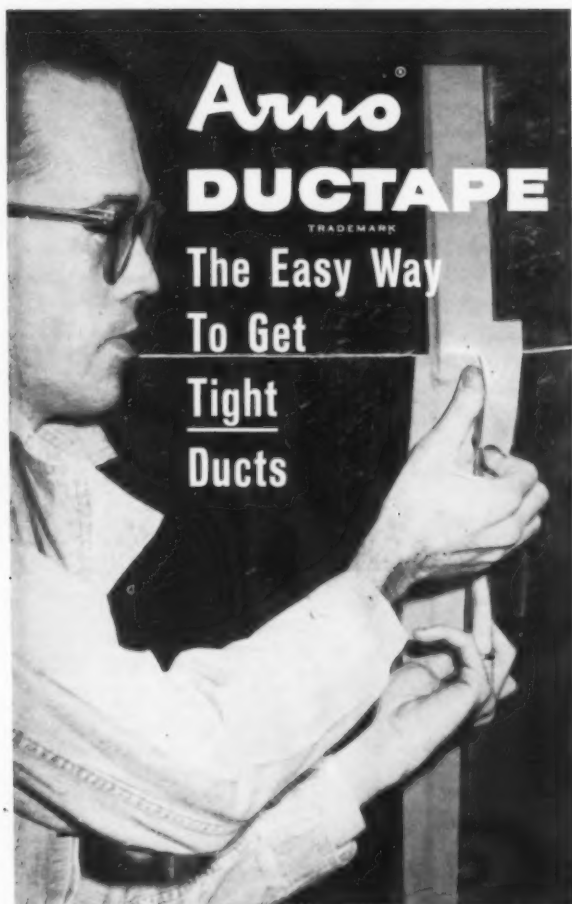
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Seattle 8, Washington  
E. M. Jorgensen Company  
Los Angeles 54, California  
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Seal every duct joint with Ductape and you'll cut your heat losses. The specially formulated adhesive sticks to metal, wood, cement, paper and plastics. Seals heat in and cold air out. Its tough fabric backing conforms to any contour to insure a snug, tight job that is done in minutes. Easy to apply — no wetting, no mixing, no mess, no waiting. Saves costly manhours!

Simplifies application of insulation to both heating and air conditioning ducts. Ideal for joints in slab ducts ... it's waterproof. Available in four colors. *Flame-resistant* type (meets ASTM specifications) for high temperature applications. Ask your jobber for it.

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## equipment developments

(Continued)

### Three Models Added To Sidewall Register Line

THREE SIZES have been added to the 10V Series line of sidewall registers. Models are now available in sizes of 10 x 4 in.; 12 x 4 in.; and 14 x 4 in.

The units feature the company's electrostatically applied finish that is said to resist rust and corrosion. The units can be used in sidewall applications or as a plenum register in basement installations, according to the manufacturer.

There are now seven models in the company's series to meet installation requirements from 8 x 6 in. to 14 x 6 in.

All models feature a shallow valve design said to simplify conventional stackhead installation. Face vanes are 1/2 in. apart and set at 30 deg angles for widespread vertical deflection. Sturdy welded construction tends to eliminate rattle noise due to air velocity according to the manufacturer — *Lima Register Co., 1790 N. Cable Rd., Lima, O.*

### Self-Fluxing Solder for Refrigerant And Water Piping Systems

"PRESTO" self-fluxing solder for use with copper tubing and brass fittings used for air conditioning systems and water piping now available in one ounce and one, three and 10 lb packages. The solder has been designed for use with oxyacetylene, propane and gas-air torches to produce a fast cleaning combination fluxing and soldering operation — *L. B. Allen Co., Inc., 9329 Berenice St., Schiller Park, Ill.*

### Portable Pneumatic Nibbler Has Versatile Cutting Head

A SHEET METAL hand shear has been added to the company line of air-powered, portable tools. Cleanly and without distortion, the shear scissors a 7/32 in. path through such materials as 18 ga mild steel, 1/16 in. laminated plastic and aluminum.

Cuts may be started from either the edge of the sheet or a 1/4 in. access hole, then continued for any desired pattern of lines or circles up to 2 in. radius. The light weigh shear housing rotates through 360 degrees for convenience in cutting overhead or hard-to-reach areas.

Speed is externally regulated by sensitive throttles on both models. Each has sturdy planetary gearing that can be lubricated from the outside without disassembling the tool, and each has the company's "Quietool" construction for minimum tool noise at all speeds — *Buckeye Tools Corp., 5003 Springboro Pike, Dayton 1, O.*





## SWORDS OF DAMOCLES

Every editor of a businesspaper, like the King's courtier of Greek legend, lives with a sword of Damocles suspended over his head.

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## equipment developments

(Continued)

### Galvanized Sheet Features Paintability

A SPANGLE-FREE steel, "Zincgrip A, Paintgrip," is designed to combine improved paintability and weldability with the standard corrosion resistance of continuous hot-dipped sheet steel carrying a 1.25 ounce class zinc coating.

The product is available in coils and cut lengths in 16 through 24 ga and in widths up to 48 in. depending upon gage. Further developmental work on producing the material in thicknesses and widths beyond this range is in progress.

For applications not requiring maximum paintability, the special chemical coating can be eliminated. The untreated sheet, designated "Zincgrip A," is also spangle-free — *Armco Steel Corp., 703 Curtis St., Middletown, O.*

### Plastic Housing for Plenum Humidifiers

A "PHENOLIC" housing has given a new look to Model 110 and Model 112 furnace mounted humidifiers. According to the manufacturer, there is no possibility of water damage because the plastic used is impervious to water; it is also rust and corrosion proof. It is designed to withstand high temperatures, and for durability.

Design changes have also been made to simplify installation and maintenance. New models are lighter in weight, smaller in depth, and have been designed for easy mounting on furnace plenums.

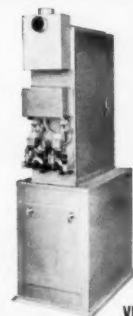
The water pan is readily accessible for changing or inspection. The motor housing, the distribution pan and the drain pan are all integral, molded-in parts of the main housing. The top half of the housing is separate — secured to the bottom half by a clip arrangement — *Research Products Corp., 1015 E. Washington Av., Madison, Wis.*



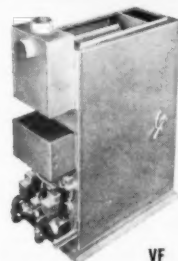
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VFB



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## new literature . . .

### Dealer-Contractor's Service Promoted In Warm Air Heating Clip Sheet

BRIEF ARTICLES suitable for release to editors of newspapers building pages are contained in a clip sheet entitled "Notes on Warm Air Heating." Typical titles are: "Proper Heating Requires Good Planning," "Compacts in Heating Systems Too," "Insulation Key Factor in Heating," "Does Your House Have Good Heating Circulation?" and "Adding a Room? . . . It Needs Heat"—*Air Distribution Institute*, 22 W. Monroe St., Chicago 3.

### Describes Compact Capacity Valves For Air Conditioning Systems

"SMALL VALVES FOR BIG JOBS" (Bulletin 262-B, six pages) describes and illustrates "Detroit" expansion valves for air conditioning and refrigeration systems. Included is a replacement chart showing valves produced by three manufacturers which are replaceable by "900" series compact capacity valves without repiping—*American-Standard Control Div.*, 5900 Trumbull Ave., Detroit 8.

### Manual Is Designed to Simplify Heating, Cooling Load Calculating

"COMFORT GUIDE" (94 pages, \$2) presents in tabular form data such as glass, shading and latitude factors which enter into heating and cooling load calculating. In addition to various types of window glass, tables cover glass block, walls, roofs, ceilings, floors, partitions, people, appliances and ventilation air. Also included are appendix tables on such items as simplified air volume calculations, heat removal, building materials lag and shade factors. Accompanying pad of heating and cooling load estimation forms (50 cents) allows two load calculations per sheet. Also offered is a psychrometric chart (25 cents)—*Arkla Air Conditioning Corp.*, 812 Main St., Little Rock, Ark.

### Explains Operation, Illustrates Uses Of Multi-Purpose Cabinet Blowers

BULLETIN CB-61 describes features of all-purpose cabinet blowers including heavy duty construction, quiet operation, two access doors, variable pitch drives, and compact design. Diagrams show how blowers are used with furnaces; heating, cooling and condensing coils; filters; and fan discharges. Charts and drawings give dimensions and specifications—*Airadyne Air Dynamics, Inc.*, 9742 Klingerman St., South El Monte, Calif.

(Continued)

### **Tells How Motorized Damper Controls Flow of Air to Each Room**

MOTORIZED "ZONE-A-TROL" DAMPER ACTUATORS designed to provide individual room temperature control or zone control in heating or air conditioning systems are described in a four-page bulletin illustrated with installation photos. Also described and illustrated are air pressure damper dampers used to control excess air volume and velocity on zone controlled air systems—*Econo Products Co., Div. of Viking Instruments, Inc., East Haddam, Conn.*

### **Heat Pumps Provide Cooling, Heating For Small Commercial Applications**

DATA SHEET describes design features of "Comfort-Aire" remote air to air heat pumps available in 7½ and 10 hp capacities. According to the company, a single unit will provide year 'round air conditioning for a small store or office area. Installed in multiples, units are suitable for use in larger buildings, the manufacturer states. Tables give specifications, dimensions and performance data—*Heat Controller, Inc., Losey at Wellworth, Jackson, Mich.*

### **Gives Application, Selection Data For Straight Line Air Diffusers**

INFORMATION on "Architectural" straight line diffusers is presented in catalog ASL-70. Included are performance tables on continuous wall-to-wall, ceiling mounted or wall mounted diffusers. Installation is explained in a series of six photographs accompanied by brief descriptive text—*Anemostat Corp. of America, 10 E. 39th St., New York 16.*

### **Describes Facilities, Services Of Stainless Steel Sheet Producer**

"THIS IS EASTERN STAINLESS" describes and illustrates company's facilities, services and products. Included are charts presenting chemical analyses of stainless steel used in sheets, strip and coils; brief descriptions of types of stainless steel; and descriptions of finishes available—*Eastern Stainless Steel Corp., P. O. Box 1975, Baltimore 3.*

### **Electric Unit Heaters, Controls Discussed in Four-Page Bulletin**

INFORMATION, specifications and illustrations are included in electric unit heater bulletin DB5-100, superseding bulletin 809. Heaters are available in

---

**WE HAVE MOVED** from the site we occupied for nearly 90 years to new, more spacious quarters embracing 45,000 square feet of floor space, providing extra facilities for manufacturing, warehousing, and office.

**NEW FACILITIES** to serve you better; insuring best quality merchandise, plus continued fast shipping and delivery service from our modern loading docks. Orders are filled promptly from our large, well-assorted inventory.



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First time electrically controlled dampers **ALREADY IN THE PIPE** 4" — 5" & 6" Round Duct Sets, felt edged damper blade, position indicator and Damper Control mounted on short length of duct.

**NO CUTTING  
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LOW COST**

Damper Control only, for square or rectangular duct available. Power enough for industrial installations.

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**NEW ENGLAND GEAR WORKS, INC.**  
Southington, Connecticut  
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## new literature

(Continued)

capacities from 1½ to 36 kw, are applicable for use in offices, stores, etc.—*Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41.*

### Three Booklets Discuss Heating, Cooling Equipment

**CIRCULAR** describes gas-fired warm air furnaces for residential and small commercial applications. Tables show ratings, dimensions and clearance data. A second folder gives ratings and dimensional data for "CAD" furnaces ranging in capacity from 175,000 to 250,000 Btuh. Also being offered is a bulletin covering air cooled condensing units with centrifugal blowers—*Tuck-Aire Furnace Co., 2045 Evans Ave., San Francisco 24, Calif.*

### Describes Metalworking Machinery, Material Handling Equipment

**AN INTRODUCTION** to more than 3800 types and models of metalworking and material handling equipment is provided by a 12 page brochure which illustrates and briefly describes the principal units according to kind of work performed. Press brakes, punches, shears, bending rolls, saws, drill presses, welders, hoists, trolleys and storage racks are among the machines and equipment covered. Ask for bulletin 90-6—*Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80.*

### Presents Revised and New Data On Power Roof Ventilators

**BULLETIN DBS-100** provides information on propeller fan power ventilators. The new brochure supersedes bulletin 2303—*Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41.*

### Describes Air Conditioning Equipment For Residential, Commercial Use

**FOUR-PAGE FOLDER (LL-480)** describes air cooled central systems for new and existing homes. A chart matches condensers and coils to indicate which pairings are needed to obtain conditioning from 22,000 to 83,000 Btuh. Residential applications for various types of homes are illustrated. Also available is folder LL-482 (six pages) listing various air cooled and water cooled air conditioning equipment for commercial applications. Included are specifications for equipment ranging from 40,000 to 420,000 Btuh—*Airtemp Div., Chrysler Corp., 1600 Webster St., Dayton 4, O.*



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Here's Proof: • Lower Price... Means Lower Cost to You  
• Double Prongs Mean Double-Grip... No chance of swiveling  
• Washer is Permanently Attached... No loose washer to drop or fall in pipe  
• Modern "Swept" Wing Nut is Eye-appealing  
... Adds new beauty to installations • Balanced Construction... Prevents possible binding of damper in duct.

**M.A. GERETT, INC.**

724 W. Winnebago St., Milwaukee 5, Wis.  
all leading jobbers stock E-Z-ON



## *we hear that...*

► TO HELP MEET THE PROBLEM faced by dealer-contractors and wholesalers in providing replacements for the thousands of residential heating and cooling controls now in use, Minneapolis-Honeywell Regulator Co. has produced a line of 170 specialized, adaptable controls. The company says the new replacements — called "Tradeline" controls — will reduce by as much as 80 percent the model numbers of all brands of controls needed to handle dealer-contractor replacement business.

### **More than 18,000 Models Now Being Sold**

K. L. Wilson, Minneapolis-Honeywell vice president, in explaining the company's decision to do something about the replacement problem, said:

"Currently there are more than 18,000 variations of residential control items being sold each year, by both Honeywell and competitors. When you think in terms of 18,000 *current* variations and then try to tabulate the variations that have been produced over the last 20 years, you come up with a really staggering figure."

Here's how the program will work: The company will supply dealer-contractors and wholesalers with a large cross reference guide, for wall mounting, to-

gether with a special pocket reference containing the same information. When a replacement is needed, the cross reference guide will show, easily and quickly, the proper control to be used.

### **Book Will Help Servicemen on the Job**

Servicemen may carry a copy of the guide with them on service calls for instant replacement information. The guide lists manufacturers' controls by subject and type. For example, the "Tradeline" replacement for a 24-volt thermostat would be found under Thermostats, Low Voltage and "Powerpile." Nine categories of controls are listed: warm air, residential air conditioning, gas burner, stoker, oil burner, hydronic and steam controls; thermostats; switching relays; and humidity controller.

According to the company, the "Tradeline" series will mean easier, faster service calls, as a small assortment of basic controls in the truck will handle most service needs right on the job. Complete instructions and built-in adaptations will make installation easy.

### **Major Benefits of Program Cited**

Among other benefits, the company says, the new line of controls will:

1) Be the answer to slow-moving stock. From the full line of 170 controls, a dealer-contractor can pick



**HOT DIPPED**

**THE CINCINNATI ELBOW CO.**

4730 MADISON ROAD ■ CINCINNATI 27, OHIO

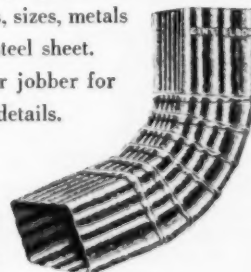
**Cincinnati Elbows are hot dipped** in zinc after forming, for a smooth, long wearing finish that is completely rust and corrosion resistant, inside and out. Once installed, they give years of faultless service.

**Cincinnati Elbows are shaped** with tapered ends, guaranteeing accurate fit with any standard size pipe.

All Cincinnati Elbows are precision produced on fully automatic machinery for unvarying, constant uniformity.

**Available** in all angles, sizes, metals also in galvanized steel sheet.

Ask your jobber for full details.



## we hear that

(Continued)

those models which will be needed locally. With each model taking the place of dozens, he can be sure of greater turnover per model.

2) Simplify inventory and bookkeeping details.

3) Result in improved city desk service. Dealer-contractors will make fewer calls and pick up larger orders.

Homeowners, too, will benefit indirectly, the company says, through better service and lower service costs.

► **M. JACQUE KOHNSTAMM** was elected president of Morrison Steel Products, Inc. at a recent meeting of the board of directors. Arthur J. Harsch was re-elected vice president. Mr. Kohnstamm, previously executive vice president, has been with the firm since 1935. Isadore Morrison, who served as president since 1958, is no longer connected with the company.

► **UNIVERSAL DIFFUSER CORP.** is moving into new and larger quarters located at 155 Saw Mill River Rd., Yonkers, N. Y. The new building, containing some 40,000 sq ft of space, will house, in addition to increased manufacturing facilities, a complete testing laboratory for research, development and

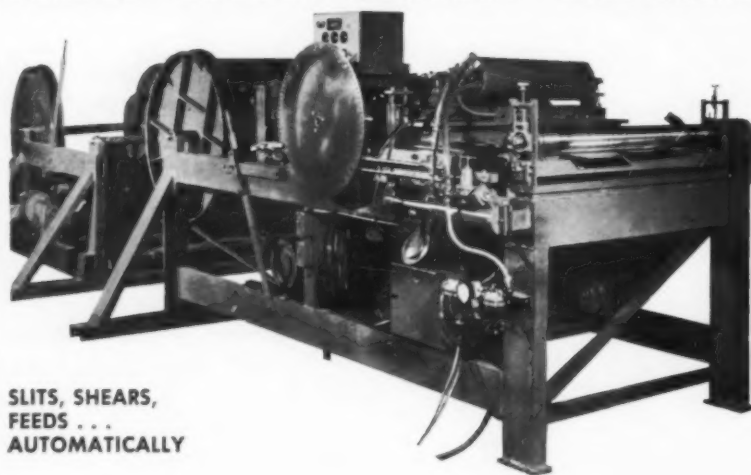
demonstration purposes. The company is now expanding its line to include extruded aluminum grilles, extruded and anodized aluminum multi-pattern diffusers, additional models of "Line-Air" diffusers, and a combination lighting troffer and diffuser. Experimental work is being conducted on a dual-duct mixing unit.

► **WHITE-RODGERS CO.** recently launched a 60-day "World Series" promotion, which offers dealer-contractors an opportunity to win a transistor radio when buying "D'Luxline" wall thermostats from their wholesalers. The promotion began August 1, is scheduled to run to October 1, wherever not prohibited by state or local law. According to the company, dealer-contractors are awarded a radio, complete with built-in speaker, earphone, antenna and carrying case, with each purchase of 20 thermostats.

► A 13,000 sq ft addition has been completed by Joseph T. Ryerson & Son, Inc. at its Seattle, Wash., steel and aluminum service plant. This has permitted the company to consolidate all of its Seattle operations at 1200 Fourth Ave., S.

► **FRASER & JOHNSON CO.** is expanding its heating and cooling product line to include units for commercial and industrial applications.

## NEW WELTY-WAY SLEAR



**SLITS, SHEARS,  
FEEDS . . .  
AUTOMATICALLY**

Imagine blanking out 12,000 elbow blanks per hour. **WELTY-WAY'S NEW SLEAR** does! **WELTY-WAY** feeds metal of any length . . . cut to the exact 1/16 inch . . . into your fabrication machine. It **supports** metal coil, **evenly feeds** metal, **pulls** metal from coil, **levels it, slits it, shears it, moves** it through the shear and **feeds** it into your fabrication machine. **WELTY-WAY** increases production more than 50% while reducing labor cost!

**WRITE TODAY**

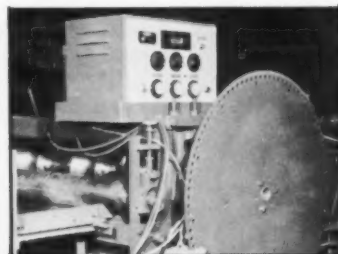
America's leading manufacturer of automation for panel and roll forming machines.

**Welty-Way PRODUCTS, INC.**

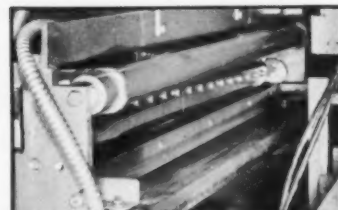
714 1st Avenue N.W.

Cedar Rapids, Iowa

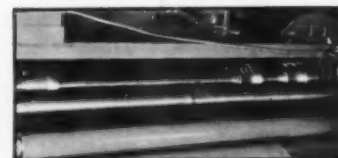
Phone EMpire 3-8148



Predetermined length setting is controlled by electronic eye.



Flying shear automatically snips metal of nearly any length.



Slitter slits metal. Unused metal is returned and rewound into a new roll of coiled metal.

## we hear that

(Continued)

► THE PAYNE CO. recently held a series of 20 open house meetings to introduce its new "Econoair" year 'round air conditioner to architects and builders as well as heating dealers-contractors. Initial meetings were held in southern California and in west Texas. Other meetings were held in Arizona, New Mexico, east and central Texas, Oklahoma and Arkansas.

► FRANK M. MUTZ, chairman of the board, Peerless Corp., was honored recently at a banquet held in the ballroom of the Columbia Club, Indianapolis. Mr. Mutz has retired from active participation in the company's management but remains with the firm in an advisory capacity. He joined Peerless in 1924, was in charge of the retail sales and installation division until 1943, when he was elected president.

► V. J. HEINIS has been appointed president and E. F. Paquette executive vice president of Rheem Mfg. Co.'s Home Products Group. Mr. Heinis has been vice president and general manager of the Home Products Group, and Mr. Paquette had been vice president and general manager of the Rheem Container Div., Linden, N.J. W. S. Goodfellow, formerly

vice president, marketing, of the Container Div., has been promoted to vice president and general manager of the division. A. W. Nides, previously Container Div. central region sales manager, has been promoted to vice president, marketing, of the division.

► HAROLD H. HOLLINGSWORTH has been named sheet metal superintendent in the Pittsburgh branch of Limbach Company's mechanical department. Mr. Hollingsworth previously was sheet metal superintendent for Standard Engineering Co., Washington, D.C., where he was employed for 22 years. He also headed the sheet metal training program there.

► SILENT AUTOMATIC PRODUCTS has launched a "Bermuda Holiday" sales campaign. The contest is open to both dealer-contractors and distributors.

► ROLAND J. AHERN, president and general manager of The Peck, Stow & Wilcox Co., has been elected director of the Drop Forging Association for a three-year term. The association is an international industry-betterment organization composed of some 75 forge plants producing commercial forging in the United States and Canada.

## HIGHER COMBUSTION EFFICIENCY! LOWER MAINTENANCE COSTS!

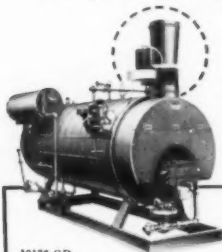
NO MOTORS, FANS OR BEARINGS IN EXHAUST LINE

PERFECT DRAFT-CONTROL BY **Quickdraft**

- ★ EXTREMELY HIGH NEGATIVE PRESSURES
- ★ ACID RESISTING FINISHES
- ★ HIGHLY EFFICIENT WITHOUT CHIMNEY

**FOR INDUSTRY . . .** Now you can boost the combustion efficiency of your boilers, regardless of the fuel you use. Quickdraft power-draft units provide instant controlled draft and completely remove all combustion, corrosive and noxious fumes at high temperature without passing them through the blower and motor. Maintenance costs are drastically reduced. Specify a Quickdraft unit to meet your particular requirements from a wide selection of various sizes.

**FOR INSTITUTIONAL AND COMMERCIAL BUILDINGS . . .** Quickdraft eliminates costly, tall and unsightly stacks. Vent incinerators, heating plants and water heaters at roof level . . . safely and efficiently.



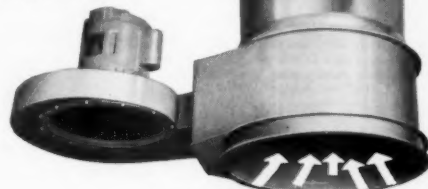
### FOR CORROSIVE SERVICE

All Quickdraft units are available in standard acid resisting vitreous enamel, 316 stainless steel, carpenter 20 rigid plastics (P.V.C.), and with plastic or Fiberglass coatings.

One of many actual installations with or without chimney.

### Patents

U.S. 2,722,372 and 2,855,874  
British 802,920  
Canadian 593,817  
Other patents pending



Write for QUICKDRAFT  
ENGINEERING DATA  
on your letterhead  
. . . today



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**CORPORATION**  
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MANUFACTURERS OF ALL TYPES OF  
MATERIAL HANDLING UNITS WITH  
EXTREMELY HIGH VELOCITIES.

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**saves in balancing air conditioning,  
heating and ventilating systems**

The Model 60 Anemotherm Air Meter, developed by the Anemostat Corporation of America, gives you — in one convenient instrument — a simple, rapid method of balancing and checking any air system. It puts at your fingertips, by means of color-coded pushbuttons, air velocity, air temperature and static pressure. • The Anemotherm Air Meter pays for itself through time saved on only one major job. **Write for Bulletin 55 giving all the facts.**

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**Don't Gamble with Less than a Product  
with Years of Proven Performance**

**No combustion chamber compares  
with INSTANT-GLO —**

The chamber glows cherry-red in 5 seconds from burner starting and gives all 'round:

### ★ TOP PERFORMANCE

Cannot lose shape or fall in. INSTANT-GLO's thick insulating brick wall gives maximum sound absorption. It's rugged . . . outlasts combustion chambers of inferior materials.

### ★ EASY TO INSTALL

Cuts, handles, assembles easily. Rigid when installed.

### ★ EASY TO CLEAN

Rugged INSTANT-GLO resists vacuum cleaner suction. No vulnerable parts of heater to burner exposed.

On replacement jobs the old chamber should be removed to make sure no air leaks exist.



**DO THE JOB RIGHT  
WITH INSTANT-GLO**

Short cuts are not fair to the customer nor do they do justice to the reputation of oil heating

For details, write to:

**BOSTON MACHINE  
WORKS COMPANY**

Oil Heating Supplies Div.  
7-17 WILLOW STREET  
LYNN, MASSACHUSETTS

## wholesaler doings...

► OVER 200 WARM AIR HEATING and air conditioning dealer-contractors, sheet metal contractors and other industry people attended the recent tool and machinery show held by Souther Steel and Aluminum Co.

A feature of the show was an auction of used tools, which gave contractors an opportunity to dispose of seldom used equipment and purchase other and more needed machinery and tools. Dealer-contractors shipped equipment to be sold to the Souther plant where it was tagged and listed for sale to the highest bidder. The Souther firm retained a 20 percent service charge to cover cost of promotion, auctioneer's fee, etc.

New machinery on display at the show was demonstrated by representatives of the various manufacturers, including Peck, Stow & Wilcox Co.; Black & Decker Co.; Lockformer Co.; American Pullmax Co.; Miller Falls Co.; Rotex Punch Co.; Whitney Metal Tool Co.; Duro Dyne Corp.; Port City Machine & Tool Co.; Turner Brass Works; Doyle Vacuum Cleaner Co.; and Snappy Inc.

The Souther company reports a very successful show. In fact, according to W. L. Dulle, vice president, "Some of our own sales organization didn't have time to attend the auction because they were busy with dealer-contractors writing orders for new equipment."

► L. E. MINNS & Co. Inc., Houston heating, air conditioning and ventilating wholesaler, has moved to 1115 Naylor. According to the company, the new quarters provide greatly increased warehouse space; air conditioned city sales and display facilities; ample parking; sheltered dock (10 truck capacity); central location; four car rail siding; and larger inventory. Customers can either serve themselves or be waited on by company employees.

► SID HARVEY INC. has acquired Victor Sales & Supply Co., Inc., a wholesale air conditioning and refrigeration supply company located at 3939 M St., Philadelphia. The Victor firm will be operated with the same personnel.

► ORLAN C. SMITH has been named executive vice president of the Robertson Heating Supply Co., Alliance, Ohio, wholesaler. Mr. Smith joined the organization 16 years ago, has served as a salesman, manager of the Youngstown branch, and general manager at Alliance.

The firm recently opened two new branches — one in Sharon, Pa., located at 385 S. Oakland Ave., the other in Wadsworth, Ohio.



## appointments . . .

► **CHARLES R. HOLSCLAW** as eastern sales manager for Modine Mfg. Co. Mr. Holsclaw will have headquarters in the New York City area, will serve a territory including the New England and Middle Atlantic states. He succeeds Owen Desmond, who has been named director of wholesaler relations. Before joining Modine, Mr. Holsclaw was head of Mechanical Products, Inc., Charleston, a manufacturer's representative specializing in heating, ventilating and air conditioning products. W. O. Ware has been named assistant sales manager of the heating and air conditioning division. Mr. Ware was previously sales manager for Vacuum Gas Burner Co., Olean, N. Y.

► **LYLE L. GROFF** as district sales manager in north-eastern Ohio for the heating and air conditioning division of Iron Fireman Mfg. Co. Mr. Groff was formerly sales manager for Waterman-Waterbury Co.

► **FRANK W. BRANDON** as estimating manager of Limbach Company's mechanical department. Mr. Brandon will supervise estimating of heating, air conditioning and ventilating contracts. He formerly was special projects manager in the Pittsburgh mechanical division.

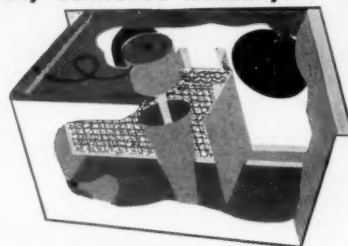
► **GEORGE H. MCCLURE** as assistant manager, sales administration, for the Armco Div., Armco Steel Corp. Mr. McClure was formerly assistant manager, central sales, in which capacity he is being succeeded by Dwight L. Hagedorn, formerly a salesman in the Dayton district. Frank R. Ditmars, previously a sales representative in the Cincinnati district, has been named assistant manager, western sales. Bert F. Carothers Jr., former salesman in the Detroit district, has been advanced to assistant manager, eastern sales, succeeding James B. Rafter. Mr. Rafter has been promoted to district manager, Philadelphia, to replace Edwin L. Singley, who was appointed assistant manager, stainless steel products.

► **JOHN E. KIRWAN** as manager of the Aurora, Ill., sales office of The Trane Co. Mr. Kirwan joined the firm in 1956. At the time of his recent promotion, he was a sales engineer for the Aurora sales office. Joseph A. Ricciardi has joined the Albany, N. Y., sales office and will handle the sale of residential and packaged equipment in Troy, Schenectady and Amsterdam. Other new sales representatives are William P. Myers, Memphis office; Hal W. Butler, Little Rock; Richard W. Corbett, Peoria; Jacob R. Groeschel, Appleton; and Francis M. McGarry, Milwaukee.

## Aqua-Aire AUTOMATIC HUMIDIFIER

With Its New Revolutionary Principle.  
Scientifically Controlled Humidity.

Only One  
Moving Part



### FEATURES:

Stainless Steel Construction . . . No Excess Water Overflow . . . No Electric Water Valve to Service . . . Humidistat — 1/100 HP Motor . . . Dimension — 10" x 10" x 18".

### SIMPLE INSTALLATION

The AQUA-AIRE humidifier is designed to be mounted on the hot and cold air plenum chambers. Two 6" diameter holes are cut each plenum, to admit air circulation through the AQUA-AIRE.

Saddle valve furnished is to be tapped into the cold, hard water supply and connected to the float assembly by a 1/4" copper tube. No overflow drain necessary.

Humidistat may be installed in any location within the area to be humidified. Wiring is by 110 volts in series with the blower and humidistat.

Write for further details to:

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1041 E. JOHNSON STREET MADISON 3, WIS.

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# PRESTO

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**BEST!**



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Works on ALL COMMON METALS. To Solder with PRESTO, JUST PAINT ON AND HEAT! Send for Your Free Sample today!

**L. B. ALLEN CO., INC.**  
SCHILLER PARK, ILL., U.S.A.

GOT A

SMALL

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BUDGET

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SEE  
AMERICAN  
ARTISAN'S  
SERVICE  
SECTION . . .  
Pages 112-113 of  
this Issue

## FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short  
and lighter pieces . . .  
Slightly longer on bulkier pieces

### MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both.  
A complete drive cleating tool . . .  
no set-up time . . . no adjustments.  
Handy to take out to the job when  
not needed in the shop. Turns idle  
time into production time. Flanges  
any square duct up to 20 gauge.  
Quickly pays for itself in time,  
material and labor savings.

No. 12 Smith's Cleat Bender  
12" Wide —  
No. 18 Smith's Cleat Bender  
18" Wide —  
No. 24 Smith's Cleat Bender  
24" Wide —  
No. 30 Smith's Cleat Bender  
30" Wide —  
Also Universal Cleat Bend-  
ing Brakes and Box and  
Pan Brakes  
Write for nearest  
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PERFECT  
DRIVE CLEATS  
fit the duct without  
the use of a screwdriver.  
TREMENDOUS SAVINGS  
in erection time and labor.

**R. E. SMITH MANUFACTURING CO.**  
1124 ELIZABETH STREET WAUKEGAN, ILLINOIS

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Takes guesswork out of  
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forced air heating, cooling  
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tions. Use it to:

- ✓ Check air flow at regis-  
ters, grilles, diffusers,  
convectors.
- ✓ Spot objectionable air  
movements in rooms.
- ✓ Detect leaks around  
doors and windows.
- ✓ Check air flow in display  
cases, reach-in refrigera-  
tors, walk-in coolers, etc.



**\$19.00**  
FACTORY NET

The ideal pocket-size air velocity indicator;  
direct-reading; can be used for checking air  
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COMPANY \_\_\_\_\_  
STREET ADDRESS \_\_\_\_\_  
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F-29A

## appointments

(Continued)

► **S. R. HILL** as central region sales manager for the air conditioning division of Westinghouse Electric Corp. In his new position, Mr. Hill will be located in the division's central region offices in Pittsburgh, and will be responsible for sales of air conditioning and heating products for residential, commercial and industrial applications. The central region includes Ohio, Michigan, Pennsylvania and Maryland.

► **C. T. ROFF** as president of Anemostat Corp. of America. Mr. Roff, formerly vice president of production and engineering, has been with the company since 1946.

► **RICHARD E. JOHNSON** as manager of Bryant Mfg. Co.'s Cambridge, Mass., branch. He succeeds W. C. Wolff, who recently resigned to become vice president in charge of sales for the Boston Gas Co. Mr. Johnson, with the firm for 10 years, was manager of the Albany branch at the time of his recent promotion.

► **A. L. TOPP** as assistant general manager of the Heating and Air Conditioning Div., Controls Co. of America. Mr. Topp, a vice president of the division, has been with the company for 20 years. He has served as its director of engineering, and more recently as director of sales. Jack S. Huber has been named director of sales of the division. Formerly assistant director of sales, he has also served as field sales engineer and midwestern district manager.

► **FRED H. EDGAR** as division vice president, aluminum sales, of the Metals Div., Olin Mathieson Chemical Corp. Mr. Edgar joined the firm in 1957 as regional aluminum sales manager in Detroit.

► **SAM FOLZ** as sales manager of fabricated products for the Fabrication Div., the Brundage Co. Herman Drenth has been appointed sales engineer and will be in charge of technical service available to the firm's customers, including engineering design assistance and production planning.

► **PETER JAMES GARVEY** as a direct factory representative in southern California for Turner Corp. He replaces Roy Ljungberg.

► **WALTER F. MORRIS Co.**, Boston, as New England representative for the Day & Night Mfg. Co. Robert Gillis Co., manufacturers' representatives with offices

## appointments

(Continued)

in Charlotte, N.C., will represent the firm in North and South Carolina as well as Virginia.

► **AIR PURIFICATION Co.**, 4775 Fox St., Denver, as a representative for General Blower Co., a subsidiary of Ilg Electric Ventilating Co. Other new representatives are Folger H. Bigelow, 31 Sixteenth St., N. W., Atlanta; and Frank Stoffel Equipment Co., 3850 N. High St., Columbus, O.

► **FORNEY FULLER & ASSOCIATES**, New Orleans, as sales representative for Westinghouse Electric Corp.'s Sturtevant Div. in Louisiana, Mississippi and Texas as well as parts of Arkansas and Tennessee. The new representative will handle the sale of heavy duty and mechanical draft fans. Offices of Forney Fuller are located at 1900 Veterans Highway.

► **KRAMER & ASSOCIATES, INC.**, Dearborn, Mich., as Michigan sales representative handling "Comfort-Aire" central air conditioning products for Heat Controller, Inc. Other representatives named to handle the sale of central air conditioning products are A. J. Taylor, Little Rock, who will cover Arkansas, northern Louisiana and western Tennessee; Weldon Kite, Denver, who will serve Colorado; and Dean L. Hunzicker, Madison, who will cover Wisconsin.

Appointed to represent the firm in the sale of electric dehumidifiers and room air conditioners are: S. M. McKenzie, Cincinnati — southern Ohio territory; Robert S. Corrigan & Co., Bryn Mawr, Pa. — eastern Pennsylvania; Feinman & Gottlieb, New York City — metropolitan New York; L. S. Gershon & Co., Kansas City, Mo. — Kansas; Floyd Yudelsohn Co., Los Angeles — southern California; and O. B. Wilt, San Carlos, Calif. — northern California.

William Kennon, Atlanta, will handle central air conditioning products as well as electric dehumidifiers and room air conditioners in Georgia and northern Alabama.

## Obituary

### Hugh Calahan

HUGH CALAHAN, vice president in charge of cooling research for The Williamson Co. of Cincinnati, died June 19, 1961 at his home in Ft. Thomas, Ky. He was 58 years old. Mr. Calahan had been connected with The Williamson Co. for 25 years.

## NOW...Only 4 STOCK SIZES Needed for pipe diameters 3" thru 11" inclusive

with  
**LESLIE**

**VersaCAP**

Reduces Cap Inventory 70%

- New, wider-range adjustable collar
- No down draft • Positive draft action
- Baffles stop snow and rain

Each VERSACAP model will fit two sizes of double-wall metal vent pipe, two sizes of single wall pipe and two sizes of J-M Transite® pipe. The all new VERSACAP design insures top performance for all the above applications as well as standard chimneys or any roof terminated vent pipe. Available in aluminum and galvanized steel.

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**LESLIE WELDING CO., Inc.**

11243 W. Melrose St. Franklin Park, Illinois  
Plants in Atlanta, Ga. and Fort Worth, Texas



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### STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

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**MILLER & DOING**

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## GO TO GOETHEL FOR FAST SERVICE ... WE HAVE WHAT YOU NEED



FULL BLAST  
GATES 3"  
and up  
STOCK

FLANGES &  
GASKETS  
BLOWPIPE  
ELBOWS  
DUST  
COLLECTORS  
& FITTINGS  
PVC PLASTIC  
HOODS —



HALF BLAST  
GATES 3"  
to 8"  
STOCK

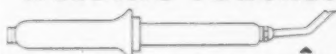
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Immediate ship-  
ment on stock  
items. Write for  
price list.

BALL JOINTS  
3" to 12" STOCK  
PIPING  
10' LENGTHS, 7"  
& LARGER. 16 ga  
and LIGHTER

**Alfred Goethel Sheet Metal Works, Inc.**  
3218 W. Fond du Lac Ave. Milwaukee 10, Wis.

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Light, compact Laramy torches keep welders welding, not waiting! Greater heat range means more production. Ask for information on our complete line. Write to  
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Special  
Alloy  
Solder  
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To meet  
Your  
Speci-  
fications.

## SOLDER

SOLDERING SALTS  
TINNING COMPOUND  
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ACID BRUSHES  
SAL AMMONIAC

## INDUSTRIAL METALS ALLOY CO.

WINSTON-SALEM, NORTH CAROLINA

## THE NEW...THRIFTY 36 FLOOR MODEL GANG SLITTER



CUTS SHEETS TO A  
FULL 38" WIDTH  
AT A SPEED OF  
60" FPM — 22 ga. cop.

The THRIFTY 36 is equipped with four especially hardened knives which enable operator to make two cuts simultaneously. The two cold rolled gauges extend completely through the slitter for either right or left hand slitting.

Shipped completely assembled, ready to operate, equipped with 1/2 hp. 110 volt, 60 cycle gear-head motor.

**TRADE PRICE—\$395.00 freight ppd.**  
For further details on cuts, speeds, and performance, write us today.



**GARY STEEL PROD. CORP.**  
4400 WEST NINTH AVENUE  
GARY 4, INDIANA

## EXPECTING AN ORDER?

You'll get it quicker if your postal delivery zone number is on the order blank, return envelopes, letterheads. The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.



**SO SOFT RUBBER  
KNEE PROTECTORS  
EVERY ROOFER SHOULD  
HAVE A PAIR.  
PRICE \$2.50.  
ORDER YOURS TODAY.**

**JOHNSON  
LADDER SHOE CO.  
EAU CLAIRE, WIS.**

## Keep Your Directory Section Handy

It's one of your most valuable tools — one which will save you many hours of looking up the products you need for your various jobs. It's the **ONE** complete, up-to-date, readily accessible source of product information on who makes the blowers, snips, furnaces, fittings, specialties of all kinds, etc., you need. Keep it handy . . . it's a time saver — you'll find it in the back of your January issue.

## PROVEN IDEAS TO INCREASE PROFITS

## CORRECT PRACTICE IN RESIDENTIAL COOLING

A big book of 37 "how and why" articles on residential air conditioning by S. W. Reid, one of the country's most respected experts on home cooling. It's a book that can save you (and your installation and service men) untold hours of time and hundreds of dollars in money on air conditioning installation and trouble shooting. Covers such subjects as . . . how to plan and install air conditioning systems for greater efficiency. . . why air conditioning systems break down. . . where to look for failures in a system. . . how to fix such failures fast. A wealth of data for all engaged in comfort air conditioning.

132 Pages

8 1/2"x11"

Price . . . \$1.50

## KEENEY PUBLISHING COMPANY

6 NORTH MICHIGAN AVENUE

CHICAGO 2, ILLINOIS

## SPECIAL MESSAGE FOR MANUFACTURERS



... want  
live wire  
action?

... get it with advertising in American Artisan's Service Section. That's one sure way to sell your products and to assure complete and economical coverage. It's a real buy when you consider you're reaching over 10,000 **GUARANTEED** readers each month at a cost of less than 1/3¢ for each reader. We'll help with the preparation of copy, too. Just send us literature and we'll supply a copy suggestion at no cost. If you decide to use space, the charge is merely \$14.00 per column inch per month.

more information available  
phone, write, wire

## AMERICAN ARTISAN

6 North Michigan Ave.

Chicago 2, Illinois

Phone — STate 2-6916

Your advertisement in this one column by one inch space costs only \$14.00 per issue — and we'll provide copy service



# SECTION

**Rates for display space in the Service Section are \$14.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue. No charge for copy and layout service.**

# Manufacturers' Agents

*Are you interested in securing additional lines?*

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential heating, air conditioning and sheet metal products.

If you would like your name listed in our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

## American Artisan

6 N. Michigan Ave., Chicago 2, Ill.

## Classified Advertising

Rates for classified advertising are 15 cents for each word, including heading and address. One inch \$7.00. Count nine words for keyed address. Minimum \$2.50. Closing date 20th of month preceding publication.

**✓ SITUATION OPEN**

Superintendent for progressive sheet metal shop in Midwest. Give detailed account of experience, age, marital status, type of work, number of men supervised, size of shop, etc., in first letter. Address Key 1221, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

**✓ AGENTS WANTED**

**REPRESENTATIVES WANTED** — for top quality line of registers, grilles, diffusers, etc. Established manufacturer has a number of exclusive territories open. Unusually fine commission basis for manufacturers' agents calling on architects, engineers, contractors, etc. Please reply Key 1213, American Artisan, 6 N. Michigan Ave., Chicago 2, Illinois.

## TRAP THAT DUST THIS EASY WAY



**CHAFCO Dust Collectors** provide a simple, low cost solution to dust problems. Powerful cyclonic action plus multi-filtration assure top efficiency. 16 portable models for every need including new MIST and FUME collectors. Capacities 420 to 5000 CFM. Priced \$165 up.

## NEW LEASE PLAN

No investment. Try now, buy later if desired, on optional lease-purchase plan. Factory representation open in certain areas. Write or phone 544-8400.

**CHICAGO AIR FILTER CO.**  
4125 W. Washington Blvd., Hillside, Ill.



**Cut Sheet Metal up To 18 Ga.  
Mild Steel With The New**

## DOCKEN SHEAR



... Complete with own power unit,  
or to be used with your 1/4" indus-  
trial type drill. Write for literature to  
C. W. LIND CO. 3403 Penn Ave., N.  
Minneapolis 11, Minnesota

## SURPLUS SHEET METAL EQUIPMENT

1. Pexto  $\frac{1}{2}$ " H.D. Gap Power Shear, 14 ga. capacity (like new)
2. Bett-Mar Sheet Metal Saw, Model 14 SM Serial No. 1223 (like new)
3. Craftsman  $\frac{1}{2}$ " drill press (good condition)
4. Libert H $\frac{1}{2}$ -Speed Shear, Model 1036 H.D. (good condition)
5. 36" Niagara Shear (air cylinder — good condition)
6. Whitney — Jensen Foot Press — air cylinder (good condition)
7. 15 H.P. Air Flo Compressor (completely overhauled — like new)
8. Maplewood Rolling, Crimping and Beading machine (good condition)
9. Bucktek (Acme) Maplewood (good condition)
10. Fallston S.H. 36" Pittsburgh lock setting down machine for radius fittings (new)
11. 1 — No. 1627J Pexto Combination machine, edging, beading, crimping, H.D. Model 16 ga. capacity (New & crated)

**RALPH MANUFACTURING CO., INC.**  
P. O. Box 188 Wadsworth, Ohio

## Special message for manufacturers

TO: Sales Promotion Mgr.  
AMERICAN ARTISAN  
6 N. Michigan Avenue  
Chicago 2, Illinois

I'm interested in advertising in the Service Section of AMERICAN ARTISAN. Listed below is a "write-up" for an ad I've been thinking of running. Also enclosed is a photo of my product. Please layout a sketch of an ad for me covering:

- ☐ 1" (\$14.00)  
☐ 2" (\$28.00)  
☐ 3" (\$42.00)  
☐ 4" (\$56.00)

your rough  
sketch here

1" segs

2" spec

your rough copy here

Name \_\_\_\_\_

Firm \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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**H&C** offers over  
**7000 Registers**  
**and Grilles...**

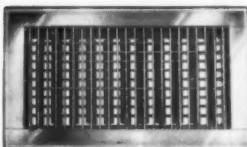
## **to tailor each job of Commercial Air Conditioning to Perfection**

WORLD'S LARGEST PRODUCERS  
OF REGISTERS and GRILLES

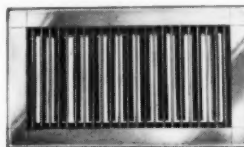
TRIPL-AIRE double and single adjustable registers with opposed louvers for absolute volume control . . . TRIPL-AIRE single and double adjustable grilles . . . FIXT-AIRE return air registers and grilles, each quickly available in 592 sizes (26 standard sizes and additional sizes in increments of 2-inches from 8" x 4" up to 72" x 48"). Plus our highly popular No. 821 series . . . the economy line for both commercial and domestic air conditioning.

The finest registers and grilles in the exact size to match perfectly each and every job requirement and engineering data that is accurate and reliable is yours when you rely on H&C. Join the ever increasing host of installers that find this line the ideal source of supply. See your H&C Jobbers, NOW! And don't overlook the excellent H&C Damper Regulator Sets.

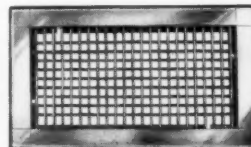
*Letters following stock numbers (V-Vertical, H-Horizontal) indicate the direction of 1: face bars, 2: secondary bars, 3: louvers.*



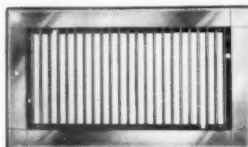
No. 92VHV TRIPL-AIRE DOUBLE DEFLECTION REGISTER. ALSO No. 92HVH



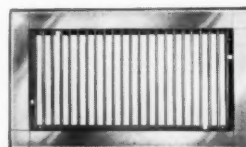
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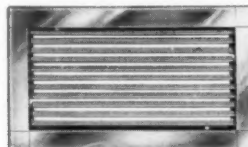
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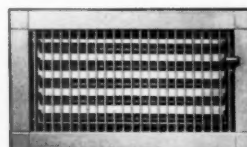
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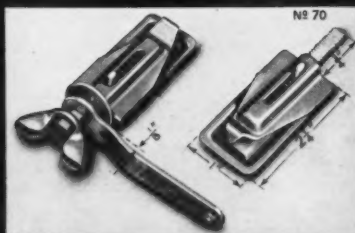
No. 93 FIXT-AIRE RETURN AIR GRILLE. No. 93VOH (with opposed louver valve)



No. 94A FIXT-AIRE RETURN AIR GRILLE. No. 94AHOH (with opposed louver valve)



No. 821 REGISTER. With horizontal face bars, vertical louvers — No. 831



No. 70 DAMPER REGULATOR SET

No. 77 is similar but is furnished with dial indicator.

No. 69. For small dampers. Identical to 70 but furnished with one bearing.



**HART & COOLEY  
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN

IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO



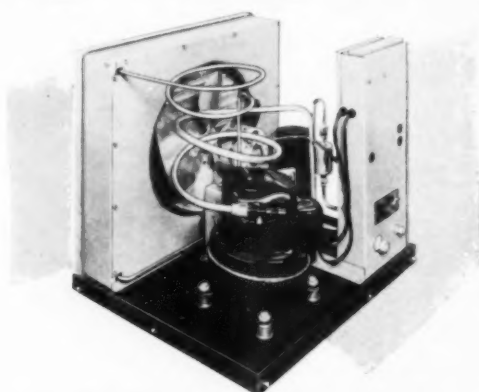
*The story behind this new combination unit shows*

# How CENTURY'S Engineering Helps You Get More Heating-Cooling Sales

The builder of 500 low-cost homes in Columbus, Ohio, wanted to offer year 'round air-conditioning as *standard* equipment. To help its dealer win the contract for this project, Century provided a new combination unit which outclassed all competitive equipment.

This special year 'round system is a clear example of how Century's engineering helps you win more heating cooling sales. Whether it be in a new building, remodeling or modernization, Century works for you all the way—to design and build the better equipment for home, apartment or commercial installations.

The full story of the Columbus breakthrough in economical air-conditioning appeared in a recent contractor publication. Send coupon today for your free copy which gives details of the installation.



**NEW AIR-COOLED COMPRESSOR-CONDENSER**  
... as furnished for remote installation on the Homestead project. Completely assembled and pre-wired at the factory, this simplified compressor-condenser makes cooling easier to install. The complete control panel requires only a supply line.

YOU CAN COUNT ON

**Century**  
HEATING-COOLING

FOR COOPERATION

JERRY JOHNSON, Sales Manager  
Century Engineering Corp., Cedar Rapids, Iowa

☐ Rush me 5-page reprint  
of the Columbus story.

☐ Have your sales  
representative call.

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

☐ Contractor

☐ Wholesaler

☐ Mfgs. Rep.



